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HOEFFTCKE'S EXTENSION APPLIANCES.

AMBULATORY TREATMENT OF FRACTURE OF THE LIMBS, TUBERCULOUS AND ARTHRITIC DISEASE OF JOINTS.

By C. A. HOEFFTCKE,

21, Woodstock Street, Oxford Street, London, W.

By Appointment to several Hospitals and Societies.

(*Continued from Jan. 27th.*)

THE skiagram (Fig. 2) shows the parts of the apparatus whereby a contracted knee-joint is straightened. The power of the steel traction-bar in the front of the knee with its fulcrum on the steel arch, is controlled by means of a strap at each end of the steel bar which is fastened on to the lateral bars of the apparatus, and the force can be so regulated as to produce a slight or powerful pull on thigh and leg simultaneously. At the back of the knee arched steel bars are fitted with screw nuts, which can be removed at will to allow for flexion. These arched bars are furnished with holes at the top and slots at the bottom, and are adjusted to the same angle of contraction as the affected joint, thus preventing further flexion.

As the leg straightens out by the action of the steel bar traction, the slots in the side steel arches allow for the straightening of the splint accordingly, and at intervals of two or three days or more the holes in the top of the steel arches are adjusted so far further up as the slot in the lower part will allow, each time preventing flexion of the amount of straightening gained, with the result that when the top hole is reached the leg is straight. This being effected, the steel bar in front and steel arches on the side of the splint are removed and elastic traction substituted.

Elastic traction can be adjusted so as to allow movement to any extent in the knee, and helps the patient to straighten the leg out with every step, thus strengthening the power of the muscles and tendons in front of the leg, representing, in fact, an artificial extensor. The great advantage of using my splint for contracture of the knee is, that the joint is gradually straightened out without much pain, owing to the continuous extension on the ankle with the tuber ischia as resisting point, which prevents pressure on the condyles. The danger of rupture of the popliteal vessels or, in obsolete cases, the lighting up the quiescent tuberculous disease is also obviated. While the patient with active tubercular disease tries to ease the pain in the joint by contracting the muscles and allowing fresh surfaces of the condyles to come in contact, the straightening of the knee-joint produces the same effect.

The steel traction-bar can, if necessary, be used with gentle or terrific force, and no ankylosed joint, unless the ankylosis is absolutely bony, can withstand its action. Of the many appliances which are used in orthopædic surgery and for joint diseases, there are few which produce such an effort on the part of the patient to help the action of an appliance as does my splint; for day by day progress can be observed while the leg is straightening out. The limbs, which have been atrophied through the leg not being used, fill out again and regain their normal appearance. Especially in cases of tuberculous or arthritic joints the results are very gratifying indeed, as shown by the many cases for which my appliances are recommended. The continuous pain in the joints is very soon diminished by means of the extension on the ankle, and the condition of the patient generally improves in a short time through being able to walk about without the help of crutches or sticks.

The extension on the ankle-joint with the tuber ischia as counter-extension is usually most carefully maintained by the patients, as they notice the pressure on the articular surfaces of the joints at once, when the extension is slackened or taken off. In arthritic cases, while straightening the joints, steel bar and elastic traction are sometimes used alternately so as not to impair the movement of the joints.

FIG. 1.
Showing joint ankylosed at an angle of 102 degrees. Displacement of tibia backwards. Condyle of tibia ankylosed in a false joint formed at the back of the articular surface of the femur.

FIG. 2.
Showing appliance and side arches with slots at the bottom and holes at the top, the holes adjusted in the middle. Steel traction-bar and arch in front of the knee.

FIG. 3.
Showing separation of articular surfaces in the joint.

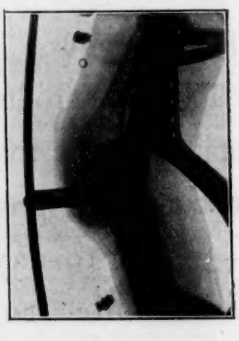

FIG. 4.
Side arches adjusted in higher holes than Fig. 2 to prevent flexion of the improved angle from 102 to 148 degrees obtained with the steel traction-bar in three weeks.

Miss D.V. (æt. 10).—Tubercular knee treated in hospital since the age of 1½ years, with the usual extension in bed, plaster-of-Paris, and back splints, &c. The knee was flexed at nearly right angles (102 degrees) for about six years. Before the bones were ankylosed there was a dislocation backwards and as the posterior half of the condyle of the femur was destroyed a false joint was formed, and in time the bones were ankylosed in that position.

My Extension Splint was applied on 29th Dec., 1911, and strong extension put on the ankle, and as the knee was so much flexed the posterior surface of the thigh as well as the tuber ischia acted as counter-extension. When first the bar was put on the joint gave way a few degrees rather suddenly and the X-ray showed that the ankylosed joint had parted in the most favourable place. The joint has been straightened out from week to week, and the side steel arches moved downwards one or two holes to prevent flexion of the amount of straightening gained by the action of the steel traction-bar.

The difference in the angles as seen in the skiagrams (Figs. 1 and 2, and 3 and 4) shows the improvement gained within three weeks of the treatment with my Extension appliance.

This is the worst case that has ever come under my notice, and I am rather wondering if the law of Nature—that is, that the bones tend to resume their natural shape when free from undue pressure—will assert itself in this case, and if movement will be obtained by means of keeping the joint in extension for some considerable time. The patient, who had never been off the crutches in her life, was able to walk after the instrument was put on, and her health, although the strain on the joint has been terrific, has considerably improved.

The disease, which was quiescent, has not lighted up, and beyond a little swelling at the back of the joint at the commencement of the treatment, which went down two or three days afterwards, the straightening process has produced no ill-effects on the joint, the temperature of the knee having remained normal. I saw the patient last Friday, 16th Feb., and the leg is nearly straight; there is no pain in the joint, it moves freely about 10 degrees, and the little girl is very pleased that she looks so much taller than before my appliance was put on. In my next description I shall report progress of this case.

(*To be continued 30th March.*)

Lettsomian Lectures
ON
GLYCOSURIA.

Delivered before the Medical Society of London.

BY ARCHIBALD E. GARROD, D.M., M.A. OXON., F.R.C.P. LOND., F.R.S.,

PHYSICIAN TO, AND LECTURER ON CHEMICAL PATHOLOGY AT, ST. BARTHOLOMEW'S HOSPITAL; PHYSICIAN TO THE HOSPITAL FOR SICK CHILDREN.

LECTURE I.

Delivered on Feb. 5th, 1912.

MR. PRESIDENT AND GENTLEMEN,—When entrusted with the delivery of a course of lectures founded to perpetuate the memory of a distinguished man of the past, one would wish to choose a subject in which he took some special interest. This satisfaction is denied to me this evening, for I can find nothing to indicate that among the diverse subjects which occupied the many-sided mind of Dr. Lettsom, the study of the renal excretion held any prominent place. Indeed, the only one of his writings with which I am acquainted, which relates to the matter, is a counterblast to the arrogant pretensions of a class of empirics who claimed to diagnose diseases by a mere inspection of the patients' urine.

Nevertheless, when I was honoured by the council of the Medical Society with the invitation to deliver the Lettsomian lectures of the current year—an honour which I appreciate most highly, and for which I beg to return my sincere thanks—I was emboldened to take glycosuria as my theme when I found that the first Lettsomian lecturer of all, Dr. Owen Rees, had treated of "Some of the Pathological Conditions of the Urine," and that the lecturer of the year 1860, Dr. Pavy, whose decease at a ripe old age we have so recently deplored, gave some of the first fruits of his investigations of diabetes, a research which was extended over more than 50 years of a long and honoured life. My subject was evidently beyond reproach, whatever the defects in my presentation of it.

HISTORICAL SKETCH.

When we turn to the writings of past centuries for light upon the growth of our knowledge of glycosuria, we find that diabetes occupies a peculiar position as a malady which was recognised by, and described from, its other symptoms, centuries prior to the discovery of its cardinal sign. The clinical picture of a disease characterised by thirst, polyuria, and loss of flesh was drawn at the beginning of the Christian era by Celsus and others, and the name "diabetes" was used to designate it in the writings of Aretæus; but although it would appear that sugary urine was recognised in India at a very early date the real foundation of the study of glycosuria was laid by that great physician Thomas Willis, whose fame rests mainly upon his work on the anatomy of the brain, and whose name is immortalised in that of the arterial anastomosis, which he was the first to describe.

The following passage, which bears the stamp of original observation, is contained, in Latin form, in the "Pharmaceutice Rationalis," the last work of Willis, published in 1674, the year before his death:—

> But the statements of many authors, that the liquid imbibed is excreted little, if at all, changed, is very far from the truth; for in every case which I have met with, and I believe that this holds true for all cases, the urine has differed greatly from the imbibed fluids, as also from any humour which is wont to be generated in our bodies, in that it is remarkably sweet, like a solution of honey or sugar.[1]

Richard Morton,[2] writing in 1698, was evidently well acquainted with this property of diabetic urine, which he describes as having lost its saltness, and as being sweet like honey, as if from a copious admixture of fresh chyle. However, the statements of the English physicians seem to have met with little acceptance on the continent, where they were questioned or denied in not a few quarters, and it was not until a century had elapsed since Willis wrote, that the next important step was made, and there was published a paper by Matthew Dobson,[3] of Liverpool, in 1776, which may justly be described as epoch-making.

Dobson obtained the sugar from diabetic urine by evaporation, as a solid if impure mass; showed that such urine undergoes vinous and acetic fermentation, and detected the sweetness of the blood serum of a diabetic patient, from which he concluded that the sugar was excreted from the blood and not formed in the kidneys. If Willis discovered, or re-discovered glycosuria, to Matthew Dobson must be assigned the credit of having discovered hyperglycæmia. We may indeed claim for him the discovery of acetonuria also, for he speaks of the sweetish odour of diabetic urine, which can hardly have been due to anything but acetone.

We may well be proud of the past achievements of our countrymen in this field, for during the seventeenth and eighteenth centuries it was by British observers that all the chief advances in the study of diabetes were made, culminating in the introduction of the dietetic treatment of the malady by John Rollo[4] in 1796. It was a Frenchman, Chevreul, who proved, in 1807, the identity of the sugar present in diabetic urine with glucose or grape sugar.

Obviously the methods in use by the early investigators—taste, evaporation, and the like—can only have served to demonstrate the presence of large quantities of sugar, such as are excreted in the worst cases of diabetes, and the detection of the slighter forms of glycosuria can hardly have been possible, save by fermentation, prior to the introduction of Trommer's test[5] in 1841, of Moore's test[6] in 1844, and of Fehling's quantitative method[7] in 1849.

So it came about that our knowledge of glycosuria came through diabetes, and this provenance has profoundly influenced, and still influences, our ideas concerning it. We do not always realise sufficiently that our conceptions of any subject are shaped, not merely by the knowledge of it which we possess, but also by the manner in which that knowledge has been gained. It will be one of my aims to show, in these lectures, that we are more likely to obtain a just conception of both if we approach the study of diabetes through that of glycosuria.

Medical science is becoming hide-bound by an obsolescent system of classification of diseases, and by an inadequate terminology. The time-honoured classification, which was based upon clinical observation, aided by morbid anatomy, is giving place to one which has its foundations in bacteriology and an ampler pathology. The transition from old to new must needs be gradual, for whilst we are able to realise the imperfections of the older scheme, the knowledge requisite for the completion of the new scheme is still lacking. There are not a few diseases the fundamental nature of which is still wholly obscure.

Our terminology does not suffice for the expression of ideas which are rapidly coming into prominence, but which had no place in the older medicine. We recognise the fact that the same clinical picture may have its origin in a number of different pathological events, and the present-day use of such terms as "syndrome," "symptom-complex," and "morbid entity," bears witness to the need of new designations.

In some instances a clinical syndrome, such as those which we associate with scarlet fever and measles, affords evidence of the working of some definite and specific morbid process, due to the growth in the body of a specific micro-organism, and in such cases the syndrome is coextensive with the underlying disease. Other syndromes have their aspects determined by the seat, rather than by the nature, of the ground-lesion, as, for example, the meningitis syndrome (to which German physicians apply the term meningismus); and, seeing that different micro-organisms tend to attack different parts of the cerebro-spinal membranes, the grouping of symptoms may serve to reveal, or to lend strong probability to the double diagnosis of the nature of the infective agent and the region which is attacked. In yet other syndromes the grouped symptoms are, for the most part, dependent upon one primary symptom, and, given a morbid process which gives rise to that symptom, the others will, sooner or later, be added to it.

It is to a symptom-complex of this last kind that we are

[1] Pharmaceutice Rationalis, 1674, sec. iv., cap. iii.
[2] Phthisiologia, lib. 1, cap. viii.
[3] Medical Observations by a Society of Physicians in London, 1776, v. p. 298.
[4] Cases of the Diabetes Mellitus, &c., second edition, London, 1806.
[5] Annalen der Chemie und Pharmakologie, 1841, Band xxxix., p. 361.
[6] THE LANCET, 1844, vol. i., p. 751.
[7] Annalen der Chemie und Pharmakologie, 1849, Band lxxii., p. 106.

accustomed to give the name of diabetes mellitus; but it has long been recognised that cases of diabetes differ very widely in their course and outlook, and evidence is accumulating that diabetes is no definite circumscribed disease, but that the disturbance of carbohydrate metabolism which leads to accumulation of sugar in the blood, and so to glycosuria, has its origin in a variety of different causes.

DEFINITION AND DIAGNOSIS OF DIABETES.

No definition of diabetes which has yet been proposed meets all requirements, and this is what may be expected if the view just expressed be correct. One cannot accurately define what is essentially indefinite. In many cases of diabetes, glycosuria is for a time, and sometimes for a long time, the only morbid symptom, and is not infrequently detected at an examination for life insurance of a man who believes himself to be in excellent health. It is clear, then, that the presence of associated symptoms, such as thirst, polyuria, and loss of flesh, cannot enter into our definition. Persistence of the glycosuria is perhaps the criterion most often set up; but this is unsatisfactory, seeing that there is good reason for believing that recovery from diabetes occasionally occurs. The definition suggested by Naunyn that a patient who passes sugar after the free taking of starch is virtually a diabetic is perhaps the best, but as I hope to show later on, it is probable that the difference between such a person and one who only acquires glycosuria after a dose of cane sugar or glucose considerably less than is required to cause excretion of sugar by a normal individual is rather one of degree than of kind.

It is possible that the error of metabolism which leads to glycosuria is not identical in all cases, but that in one case the chief part may be played by increased formation and mobilisation of sugar in the organism, and in another impaired destruction may play the chief part. However, I do not propose to enter in these lectures upon any discussion of the many and difficult questions which the chemical pathology of glycosuria presents, but rather to deal with those aspects of the subject which are more purely clinical.

The Diagnosis of Glycosuria.

There is no urinary anomaly of which we should know more than of glycosuria, for thousands of specimens of urine are being tested for sugar every day, in the course of the routine examination of hospital and private patients, and of candidates for insurance. Only for albumin is as persistent an outlook kept. Yet when we turn to what has been written upon the subject we find that many recorded observations, which would otherwise be of great value and interest, are vitiated by the absence of conclusive evidence that the abnormal substance excreted in the urine is really glucose.

A reducing substance in urine which responds to the tests usually relied upon is not necessarily a sugar; and other sugars besides glucose are met with in urine. The development of a greenish opacity, which may appear only when a mixture of urine and Fehling's solution has been boiled for some time, or as it cools, may indicate the presence of glucose in small amount, but that it does so must not be assumed without further proof. Certain nitrogenous constituents of normal urine have some reducing power, and salicyluric acid, which is present in the urine of patients taking salicylates, causes such a reduction. On the other hand, an orange precipitate, formed when hot urine is mixed with hot Fehling's solution without re-boiling, affords almost conclusive evidence of the presence of a hexose monosaccharid, such as glucose or lævulose.

An orange precipitate, obtained on boiling, is sometimes due to the presence of a compound glycuronate. Glycuronic acid is closely allied to the sugars, but its presence is in no way indicative of a disorder of carbohydrate metabolism, but of the calling into play of one of the protective mechanisms, by means of which the organism is enabled to avert from itself damage from chemical poisons introduced by the mouth, or toxic substances formed in the alimentary canal. The noxious substance is combined with glycuronic acid, and so excreted, just as benzoic acid is combined with glycocoll and excreted as hippuric acid. Hence the appearance of glycuronic acid in the urine indicates merely the need of dealing with such a poison.

Homogentisic acid, the aromatic acid which is excreted by those who exhibit the very rare, and usually congenital, error of protein metabolism known as alkaptonuria, is a powerful reducing agent; and alkaptonurics have sometimes been refused for insurance on this account. However, the other properties of alkapton urine are so striking as to render the diagnosis easy to anyone acquainted with these properties, which include darkening on standing or addition of alkalies, and the staining of garments, as by a photographic developer.

Sugars in Urine other than Glucose.

Of the sugars, other than glucose, which are met with in urine, lactose, lævulose, and the pentose sugar arabinose are the most important; whereas maltose, isomaltose, galactose, and the heptose recently described by Rosenberger[8] as present in a single case, have as yet little more than academic interest. A term is certainly needed to designate the excretion in urine of sugars generally, and this need is supplied by the word "mellituria," which has been somewhat widely employed of recent years by German medical writers.

Lactose.

After glycosuria, lactosuria is the commonest variety of mellituria, but it is only met with in certain definite circumstances, in the absence of which it may be excluded.

Lactose is sometimes excreted by women during the last months of pregnancy, but much more often and in larger quantities during lactation, and especially when, for any reason, nursing has suddenly been arrested. It may also be found occasionally in the urine of breast-fed infants or of those to whose bottle-food this sugar has been added. J. Grosz,[9] who made a careful study of the subject, failed to find lactose in the urine of healthy infants at the breast, but observed conspicuous reduction by the urine of such infants when suffering from gastro-intestinal disturbances. Langstein and Steinitz[10] proved, by methods which allow of no doubt, that the sugar excreted in such circumstances is really lactose, with an occasional admixture of galactose, which is one of the components of this disaccharid. In one case the bulk of the urinary sugar was galactose.

It is obvious that lactosuria has no connexion with glycosuria, and that further discussion of it will throw no light upon the problems with which we are concerned at present.

Pentose.

The same may be said of pentosuria, the symptom of a rare anomaly of metabolism which is probably harmless, but as it is easily mistaken for persistent glycosuria and has, in not a few instances, been treated as such by dietary restrictions which are very irksome, if not actually detrimental to the patient, it is clearly of great importance that it should be correctly diagnosed when met with.

The pentose excreted belongs to a wholly distinct class of sugars from glucose, its molecule being built up upon a chain of only five carbon atoms, and much obscurity still surrounds the origin of the pentose of urine, which is always arabinose, and almost always in the optically inactive or racemic form. This much appears certain—namely, that the metabolic error which underlies pentosuria is of a wholly different nature from that which brings about the excretion of hexose sugars.

Lævulose.

With lævulosuria the case is different, for glucose and lævulose sometimes occur together in the urine, so that there would appear to be some connexion between them.

Lævulose has been detected in small amounts in the urine of not a few diabetic patients, in association with much larger quantities of glucose. In other cases the proportion of lævulose is so much greater that the optical effect of the glucose is neutralised to no slight extent, and is occasionally balanced or over-balanced. For this condition the name of mixed mellituria has been suggested.

In almost all the recorded cases of this kind the exclusion of carbohydrates from the diet has brought about the disappearance of both sugars from the urine, and in some cases it has been found that when lævulose was taken by the mouth, even in doses calculated to overstep the tolerance of normal persons, no increase of the urinary lævulose has resulted.

Otto Neubauer[11] has described an example in which,

[8] Deutches Archiv für Klinische Medizin, 1907, Band lxxxviii., Zeitschrift für Physiologische Chemie, 1906, Band xlix., p. 202.
[9] Jahrbuch für Kinderheilkunde, 1892, N.F., Band xxxiv., p. 83.
[10] Hofmeister's Beiträge zur Chemischen Physiologie und Pathologie, 1905, Band vii., p. 575.
[11] Münchener Medizinische Wochenschrift, 1905, Band lii., p. 1525.

although a large dose of lævulose caused no increased output of that sugar, the administration of glucose brought about an increase of both glucose and lævulose in the urine. In some other cases as large a dose as 100 grammes of glucose has caused no increased excretion of either sugar. We must assume that, in Neubauer's case, glucose was in part converted into lævulose and excreted as such.

In a further group of cases of what may be styled pure lævulosuria, the excretion of lævulose is arrested by the removal of lævulose itself and saccharose, of which it is a constituent, from the diet, whereas glucose and starchy foods can be taken with impunity. Even inulin, a polysaccharid related to lævulose as starch is to glucose, fails to excite lævulosuria in such cases. In one case, for the most thorough investigation of which Otto Neubauer is again to be thanked, when the urine was freed from lævulose by dietary any dose of that sugar, however small, excited lævulosuria, and whatever the dose given, whether as little as 3·8 grammes, or as large as 50 grammes, practically the same fraction of it reappeared unchanged in the urine—namely, 15–17 per cent.

The whole subject of lævulosuria calls for much further investigation, but, seeing that what is needed is multiplication of observations of individual cases, and that such cases are extremely rare, progress must needs be slow.

Diagnostic Methods.

The occurrence of reduction when the hot urine is mixed with hot Fehling's solution without re-boiling indicates, as I have already mentioned, the presence of glucose or lævulose or both, but it does not serve to distinguish between them.

With lactose, which is a disaccharid of glucose and galactose, reduction is less prompt than with monosaccharids, and does not occur until the mixture is boiled. With pentose, also, the reduction occurs only after boiling—it may be only after somewhat prolonged boiling, and usually with remarkable suddenness. The quantity of arabinose excreted in cases of pentosuria is not large, and a pea-green rather than an orange opacity is usually observed.

In a urine which responds to Trommer's or Fehling's tests dextro-rotation of the polarised ray indicates the presence of glucose or lactose. The dextro-rotation may be conspicuously less than is to be expected from the reducing power, owing to the presence of a lævo-rotatory substance such as lævulose or β-oxybutyric acid, of which the latter is a common constituent of diabetic urines, and often an abundant constituent. Urine containing an evenly balanced admixture of dextrose and lævulose may be optically inactive. A lævo-rotatory urine, which reduces copper reagents, may contain lævulose, either alone or with a lesser quantity of glucose. Again, the compound glycuronates are lævo-rotatory, whereas glycuronic acid itself is dextro-rotatory. When, therefore, a urine which contains a compound glycuronate is boiled with hydrochloric acid, so as to set free glycuronic acid, its original lævo-rotation gives place to a dextro-rotation.

In all cases of pentosuria hitherto examined, with one or two exceptions, arabinose has been excreted in the racemic form, and the urine has been optically inactive. Nor do alkapton urines exert any effect on the polarised ray.

The fermentation test lends valuable aid. Dextrose and lævulose are fermented by yeast, whereas lactose is not so fermented within the 24 hours allowed for the test—that is to say, not until it has been split into its monosaccharid constituents. Arabinose is not fermented by yeast, and the glycuronates and homogentisic acid do not respond to this test.

The deposition of a crystalline osazone, on application of the phenyl-hydrazine test, indicates the presence of glucose, lævulose, or arabinose. Glucose and lævulose yield the same osazone, which melts, when pure, at 206° C., and this test affords no distinction between them.

The pentosazone melts at a much lower temperature, 150°–160° C. Lactose forms an osazone which melts at 200° C., but as it is much more readily soluble, and the quantities of lactose met with in urine are not large, it does not crystallise out from the dilute solution, even on cooling. Glycuronic acid, also, forms a crystalline compound with phenyl-hydrazine, but the compound glycuronates do not do this, and urines which contain them do not respond, therefore, to the phenyl-hydrazine test.

Lævulose forms a special compound with methyl phenyl-hydrazine, which melts at 153° C., and which serves for its differentiation from glucose, which does not yield an osazone with this base. Special tests, such as Rubner's for lactose, Seliwanoff's for lævulose, and the phloroglucin and orcin tests for arabinose and glycuronic acid, may also be employed.

The above summary will suffice to emphasise the importance of making sure, in any case which may serve as a basis of conclusions as to the occurrences, causation, or temporary character of a glycosuria, that the reducing substance in the urine is actually a sugar, and, if a sugar, glucose.

To ensure certainty, evidence should be forthcoming that the urine in question contains a dextro-rotatory reducing substance, fermented by yeast, and which yields an osazone of the correct crystalline form, and which melts, before re-crystallisation, at a point slightly above 200° C.

THE CLASSIFICATION OF THE VARIETIES OF GLYCOSURIA.

There are few symptoms in the whole category of morbid manifestations which own so many distinct causes as does glycosuria, and not one which is so uncertain, and apparently so capricious, in its appearance when its several causes are at work in the human organism. Even when the pancreas, the organ which, above all others, appears to be most intimately concerned with the metabolism of carbohydrates, is itself the seat of disease, glycosuria is only occasionally observed. In some of the gravest forms of pancreatic disease this symptom is rare.

In the following list I have collected together a large number of the known causes of glycosuria in man, but I am not prepared to contend that the list includes all the conditions in connexion with which excretion of sugar has been observed. Some varieties which have only been observed in the course of experiments upon animals have been intentionally omitted.

Toxic.—Administration of: Morphine, atropine, strychnine, curare, amyl nitrite, copaiba, phosphorus, perchloride of mercury, uranium salts, phloridzin, acetone. Anæsthetics: Chloroform, ether, nitrous ether. Poisoning by coal gas, carbon monoxide. Alcohol, especially in champagne and beer. Thyroid extract, adrenaline.
Asphyxia—i.e., accumulation of carbon dioxide in respired air.
Cold immersion (e.g., attempted suicide by drowning).
Inanition (vagabond glycosuria).
Psychic strain or shock.
Diseases of the nervous system.—Apoplexy, convulsions, traumatism, cerebral tumours, meningitis (meningococcal and tubercular), syphilitic affections of the brain, general paralysis of the insane, paralysis agitans, tabes.
Acute fevers.—Pneumonia, scarlet fever, measles, mumps, variola, malarial fevers, phlegmonous diseases.
Diseases of the liver.—Cirrhosis, cholelithiasis.
Diseases of the pancreas.—Hæmorrhagic pancreatitis, necrosis, carcinoma, fibrosis, pancreatitis of mumps, catarrhal pancreatitis.
Intestinal disorders.—Corrosive poisoning, enteritis, colitis.
Diseases of the thyroid gland.—Exophthalmic goitre, myxœdema.
Diseases of the pituitary body.—Acromegaly, gigantism.
Pregnancy, tumours of the uterus and ovaries.
Renal affections.—Functional and organic.
Chyluria.

It will be seen that the list includes a medley of conditions, many of which stand in no obvious relationship to each other. Some fall into what appear to be natural groups, such as the toxic varieties and those associated with lesions of the nervous system, but even these groups are to a great extent artificial, for in them are included varieties of glycosuria which differ widely in their nature, and for some of which several wholly distinct explanations may be suggested, all almost equally plausible.

There can be no doubt that different toxic substances induce glycosuria in quite different ways. Thus, the excretion of sugar which follows the administration of thyroid extract is evidently intimately related to that which results from over-activity of the thyroid gland, of which I propose to speak at some length in a later lecture.

Phloridzin glycosuria may serve as a type example of that which results from a failure on the part of the kidneys to retain the normal quotum of sugar in the blood, and Pollak [12] believes that the excretion of sugar which follows the administration of salts of uranium has a similar origin.

Other poisons, again, such as coal gas and carbon monoxide, probably owe their power of inducing glycosuria to the partial asphyxiation to which they give rise. Edie, B. Moore, and Roaf,[13] who have recently published the results of an experimental investigation of asphyxial glycosuria, arrived at the conclusion that the important factor in its causation is not a deficiency of oxygen, but the accumulation of carbon dioxide in the tissues. They point out that many of

[12] Archiv für Experimentelle Pathologie und Pharmakologie, 1911, Band lxiv., p. 414.
[13] Biochemical Journal, 1911, vol. v., p. 351.

the drugs which are excitants of glycosuria exert actions which lead in various ways to accumulation of carbon dioxide in the circulation, such as curare, morphine, and perhaps amyl nitrite. The glycosuria which accompanies general anæsthesia they regard as due in part to a similar cause, and in part to the direct physico-chemical action of the anæsthetic.

It would take me too long to follow the observers quoted into a discussion of the manner in which the accumulation of carbon dioxide brings about the excretion of sugar, but it should be mentioned here that some varieties of glycosuria which do not fall into the toxic group may not improbably have a like origin.

Georg Hoppe-Seyler [14] has described the vagabond glycosuria. He observed that tramps who had walked long distances on a diet of bread and potatoes frequently passed urine containing 0·5–0·7 per cent. of glucose on admission to an institution, but that the sugar quickly disappeared, even on a diet rich in carbohydrates, and did not return even after the administration of glucose on an empty stomach in doses calculated to tax the tolerance of a healthy man.

The glycosuria which follows immersion in cold water was observed by Glaessner [15] in cases of attempted suicide by drowning. It also was of a transitory kind.

The glycosurias which accompany diseases and lesions of the nervous system also constitute a miscellaneous group. The profound influence of the nervous system in controlling carbohydrate metabolism admits of no question; but nervous lesions may induce glycosuria in several different ways, as on the one hand by causing evacuation of the glycogen reservoirs, on the other hand by bringing about disturbances of the functions of the glands of internal secretion, and possibly in yet other unsuspected ways.

The latter portion of the list foreshadows a more systematic clinical grouping, according to the organ concerned in the causation of glycosuria in different cases, and the evidence bearing upon this question will form the chief subject of discussion in my second and third lectures.

In the present state of our knowledge no complete system of classification of the varieties of glycosuria on such lines is possible, and we must be content to wait until increasing knowledge places such a grouping within our grasp.

A Pathological Classification.

On the other hand, what may be called a pathological classification of glycosuria is already within our reach, and one based upon fundamental differences.[16]

In the one class we may group all those cases in which the excretion of sugar in the urine is the outward manifestation of the presence of excess of sugar in the blood, of hyperglycæmia; and in a second class, those in which the sugar content of the blood is normal, or even below normal, and in which the glycosuria must be attributed to a failure on the part of the kidneys to retain the normal quotum. There is no English word which expresses this renal shortcoming so well as does the German word "Durchlassigkeit."

However, such a classification is not very useful for practical purposes, seeing that the cases of the first, or hyperglycæmic, group are in such enormous excess that the practical outcome is much the same as if we were to classify human beings into pigmented individuals and albinos respectively.

The large hyperglycæmic group needs to be further subdivided by a deep line of cleavage into those cases in which the excess of sugar in the blood is the outcome of a metabolic derangement (a deficient utilisation and excessive mobilisation of glucose in the organism), and those in which the blood is temporarily overloaded with glucose by the emptying of the glycogen reservoirs, as in the "puncture glycosuria" of Claude Bernard. But here, again, the dichotomy rather chips off a fragment than effects a just division, for what may be called metabolic glycosuria embraces the great majority of all cases met with in clinical practice, and to this group belong all cases which can lay any just claim to the name of diabetes.

I am far from wishing to suggest that puncture glycosuria has no clinical importance. On the contrary, a transitory excretion of sugar which ceases spontaneously in a day or two, as we should expect a glycosuria due to emptying of the glycogen reservoirs to do, is not a very uncommon clinical event, and may follow insults to the organism of various kinds, such as severe injuries, mental and emotional shocks, surgical operations, or paroxysmal pains. This makes the study of the causation of glycosuria even more difficult than it would otherwise be, and increases the chance of our being led to incorrect conclusions.

To select a single example: in cases of cholelithiasis extension of inflammation to the pancreas is by no means a rare event, and when this happens glycosuria or diabetes results; but, on the other hand, the transient excretion of sugar which sometimes accompanies gall-stone colic is probably due to emptying of the glycogen reservoirs.

The glycosuria which results from impaired retentive power of the kidney is in no sense due to error of carbohydrate metabolism, although when the blood is continuously drained of sugar by renal defect, as in animals subjected to repeated injections of phloridzin, the attempt to keep up the normal supply to the tissues leads to a secondary metabolic disturbance, to wasting and breaking down of proteins in the organism, and to a condition which resembles diabetes in some respects.

A Clinical Classification.

From yet another standpoint, and this time a clinical one, cases of metabolic glycosuria may be grouped into three main classes, according to the manner in which the disturbed body chemistry manifests itself—namely, into those cases in which actual excretion of sugar does not occur in ordinary circumstances, but may be induced by a dose of glucose or of cane sugar which, although it may be large, would not be sufficient to produce glycosuria in a normal individual; those cases in which spontaneous glycosuria occurs for a time, or recurs intermittently, apart from any excessive taking of sugar; and lastly, those in which the glycosuria is continuous, or is only suspended for a time by the imposition of a more or less rigid dietary poor in, or as far as possible devoid of, carbohydrate constituents.

The dividing lines between these several groups are shadowy, and an individual case may pass through all three stages in the course of its development. Again, some of the exciting causes of glycosuria with which we are most familiar produce in some cases no obvious disturbance of carbohydrate metabolism at all; in others a mere lowering of tolerance for glucose, a potential glycosuria; in others a temporary spontaneous glycosuria; and in others again a continuous excretion of sugar which conforms to any definition of diabetes yet advanced.

Need of Prolonged Clinical Investigation.

I have already emphasised the importance of the accurate diagnosis of glycosuria, but it is a matter of no less importance that each individual case should be subjected to careful investigation over a considerable period of time. Only in this way can we hope to make any real advance in the study of the clinical aspects of our subject.

We cannot tell which cases are likely to deviate from the ordinary course, and many examples of temporary glycosuria, in themselves of great interest, have been rendered valueless by the lack of such investigation during the glycosuric period. Only when it has been already too late to fill in the gaps in the study of it has the phenomenon been recognised as transitory. Yet as such cases constitute the exceptions, and the immensely greater number follow the usual continuous course—which course can be foretold with some approach to accuracy after a few examinations, much labour will have to be wasted if we are to insure that all cases in which the excretion of sugar may prove eventually not to be persistent, shall be subjected to adequate investigation. Not really wasted, however, for our knowledge of diabetes is not yet so complete that the careful watching of ordinary cases can be dispensed with, either from the point of view of the advance of medical science or from that of the interests of the individual patients.

Nor is prolonged watching of any less importance than careful investigation during a special period, for experience teaches that recovery from glycosuria cannot be assumed to be permanent, until the case has been under observation for a long period after the urine has ceased to contain sugar. In many of the recorded cases the period of watching has been far too short to carry conviction.

Again, many descriptions are deprived of the value which

[14] Münchener Medizinische Wochenschrift, 1900, Band xlvii., p. 531.
[15] Wiener Klinische Wochenschrift, 1906, Band xix., p. 920.
[16] See Leo Pollak, Archiv für Experimentelle Pathologie und Pharmakologie, 1909, Band lxi., p. 376.

they would otherwise possess by the absence of any evidence to show whether, after glucose has ceased to be excreted spontaneously, the patients have recovered the normal tolerance for carbohydrates, or whether the power of dealing with foodstuffs of this class has remained persistently lowered. It is not difficult to obtain information on this point by means of simple and easily applied tests, and concerning most of the cases recorded in recent years such information is forthcoming.

Such investigations of glycosuria and of diabetes from the standpoint of clinical medicine are still greatly needed; for this branch of the subject has until recently been somewhat neglected in favour of the study of the metabolism of carbohydrates and its derangements in disease. This latter has long engaged the attention of a succession of able and highly skilled observers, and to the control of the metabolic error our treatment has hitherto been mainly directed. Far be it from me to depreciate in any way the value of these fascinating researches which have done so much to advance our knowledge, and have conduced so much to the advantage of generations of diabetic patients. Rather would I plead for a similar extension of our knowledge of diabetes in other directions, and a concerted effort to get into touch with the diseases behind the syndrome—an effort in which chemical pathologists and clinical observers may well combine.

What is specially needed at the present time is further advance into the regions which were opened up by Minkowski's discovery of the effects of removal of the pancreas in dogs, and from many sides pioneers are beginning to press forward into the unexplored tract. One such newly developed field is the study of the effect of the administration of glucose and other sugars to healthy persons and to sufferers from various diseases, and of the conditions which influence the power of utilising the several individual sugars.

POTENTIAL OR ALIMENTARY GLYCOSURIA.

Many constituents of urine which, when present in considerable amounts, indicate deviations from the standard of health, can be shown by methods of special delicacy to be present in traces in normal urine. This is the case with albumin, and with glucose also.

The controversy warmly carried on around this question some years ago may now be regarded as laid to rest, and it is now accepted as a fact that the urine of normal individuals contains glucose to the amount of some 1 or 2 decigrammes in the output of 24 hours. However, such minute traces do not suffice to yield the tests in ordinary use, and we only speak of glycosuria as present when the amount of glucose excreted is such as may be detected by the reduction tests employed in clinical work.

Limit of Tolerance of Glucose.

Even glycosuria of such degree can be induced in healthy persons by the administration of sufficiently large single doses of glucose. In other words, the power of a normal man to dispose of sugar given by the mouth is not unlimited. The limit varies somewhat in different individuals, but it may be stated that on an average 150–200 grammes of glucose are required to cause glycosuria. A smaller dose is needed when the sugar is taken on an empty stomach than when it is taken within a short period after a meal.

The limit of tolerance is different for different sugars. For cane sugar it is much the same as for glucose; for lævulose and lactose it is somewhat lower. As small a dose as 20 grammes of galactose may cause galactosuria, and even as little as a single gramme of arabinose suffices to induce an alimentary pentosuria.

Only a very small fraction of the dose given reappears in the urine, and although with larger doses the output is increased, the percentage remains small, and there is nothing to suggest that all sugar taken beyond a certain amount is excreted unchanged. Van Noorden[17] found that the rate of increase with increasing doses varies widely in individual cases, and Raphael[18] observed the paradoxical fact that some persons appear to deal more efficiently with larger than with smaller doses.

It is a much debated question whether the limitation of the tolerance of normal human beings for glucose indicates that the power of dealing with sugar in the organism is limited and can be overtaxed by introducing an excessive dose of glucose into the alimentary canal, or whether some part of such a dose is introduced into the blood by what may be called a short circuit, and so avoids the metabolic changes to which it is ordinarily subjected in the liver. Naunyn[19] suggested that some part of the glucose taken passes on into the intestine and, entering the lymphatic channels, reaches the blood directly by way of the thoracic duct. The slight hyperglycæmia so induced might bring about the observed excretion in the urine.

In order to put this theory to a crucial test W. Schlesinger[20] ligatured the thoracic duct of dogs whose tolerance for glucose had previously been measured. He found that after a brief period of lowered tolerance, the possibility of inducing glycosuria by the administration of glucose practically ceased in the animals so treated, but that after a month or so the limit of tolerance was re-established, although not at its former level.

On the other hand, facts are coming to light which indicate strongly that the alternative explanation is the correct one, and that the normal limit of tolerance is the outcome of a balance of factors. That the limit may sink conspicuously when certain morbid conditions are present is an established fact, but it would also appear that, in the course of certain diseases, of which myxœdema is one, the limit tends to be conspicuously raised; so that the patient may exhibit no glycosuria after the administration of doses of glucose which would far overtax the tolerance of any normal subject.

The normal limit is far above any test to which it is likely to be put in ordinary life, and it must rarely, if ever, occur that spontaneous glycosuria results from excess of sugar in the diet of healthy individuals; and the supposition that the power of dealing with glucose is not unlimited is compatible with what is known of the working of other metabolic processes in the body.

Lowering of Tolerance of Starch.

This much, at least, is obvious—that a phenomenon which can be induced in any healthy man cannot be looked upon as morbid, whereas deviations from the normal limit, in one direction or the other, may be so regarded.

No dose of starch which can be taken induces glycosuria in a normal subject, probably because it is not converted into sugar quickly enough to overtax tolerance at any given moment. Hence, when a meal of starchy food, of whatever amount, causes sugar to appear in the urine, we are confronted with a definitely morbid phenomenon, and there is much to support the view enunciated by Naunyn, and held by most observers, that the so-called alimentary glycosuria ex amylo, as distinguished from alimentary glycosuria e saccharo, is nothing less than diabetes writ small.

This is so important a matter, and one about which so much apprehension exists, that I shall be pardoned if I dwell upon it for a moment.

The name alimentary glycosuria is often used in connexion with this phenomenon as a sort of diagnostic placebo, to avoid the use of the ugly term diabetes, and I am not disposed to quarrel with such employment of it (although it greatly impairs its scientific value) so long as it is clearly recognised that between the patient who only excretes small quantities of sugar after meals rich in starchy foods and the sufferer from the gravest form of diabetes the difference is merely one of degree, and that the interval between them is bridged over by intermediate cases of all grades. In a sense all diabetes is alimentary, although in the worst cases the response to restriction of diet is very slight.

The fact that a patient is subject to alimentary glycosuria ex amylo often escapes notice. He will probably complain of no symptom suggestive of diabetes, and I have known instances in which examination of a specimen of urine passed at mid-day has revealed its presence, although in repeated examinations of morning and evening specimens no sugar had been found.

I recently had under observation a man, aged 52, who stated that on one occasion ten years previously sugar had been found in his urine. During the following eight years frequent examinations had revealed no sugar, and none had been found by the medical man who sent him to me on account of a wholly different complaint. Some urine passed

[17] Die Zuckerkrankheit, fifth edition, 1910, p. 22.
[18] Zeitschrift für Klinische Medizin, 1899, Band xxxvii., p. 20.
[19] Der Diabetes Mellitus, second edition, 1906, p. 33.
[20] Wiener Klinische Wochenschrift, 1902, Band xv., p. 768.

at my house at 11 A.M. contained a small quantity of reducing substance, which was proved to be dextrose. He then went for a holiday, during which his urine was examined by two medical men, who found no sugar. Three months afterwards sugar was present in every mid-day specimen, but not in urine passed on rising or in the evening.

If this patient has had alimentary glycosuria ex amylo for ten years past it is remarkable that the condition has not become aggravated during that long period; and if, on the other hand, there has been a long interval of immunity, the case is none the less exceptional in its course.

When any doubt exists in connexion with a case of the kind under discussion it may be removed by the administration of a meal rich in starch. To such a meal the subject of alimentary glycosuria ex amylo will promptly respond by excreting sugar.

It is very important that the condition should be detected when present, and that the patient should be treated by a suitable restriction of diet at this so early and amenable stage of his complaint. If left unchecked, the diabetes from which he suffers will sooner or later become aggravated, whereas by appropriate treatment further developments may be postponed.

Such lowering of tolerance of starch is most often met with in men who have reached, or who have passed, middle life, as the initial symptom of the milder kind of diabetes which is common at that period of life. In younger subjects, in whom the diabetic symptoms so often develop in a remarkably sudden manner, such an initial stage, if present, usually escapes notice, and the malady is seldom diagnosed before the glycosuria is already persistent and pronounced.

Lowered Glucose Tolerance.

To return to alimentary glycosuria e saccharo. As we have seen, this symptom is exhibited in some measure by normal individuals, but just as we do not give the name of glycosuria to the excretion of sugar by normal persons, so also the term alimentary glycosuria is only applied to cases in which the tolerance of glucose is depressed below the normal limit.

It is customary when testing tolerance to administer a single dose of 100 grammes of glucose upon an empty stomach, but in many cases far smaller doses—such as 50, 30, or 20 grammes—suffice to induce glycosuria. As a rule, the excretion of sugar ceases after some three or four hours, but it sometimes happens that it persists for several days, a phenomenon which suggests the presence of an important derangement of carbohydrate metabolism.

Lowered glucose tolerance—to employ the least cumbrous name for a condition for which a simple designation is much to be desired—is associated with a variety of morbid states, but, like spontaneous glycosuria, it is capricious in its appearance, even in maladies which are amongst its recognised causes. Of two cases, apparently much alike, this symptom may be present in one and absent in the other.

Febrile disorders are amongst its common causes, and of others may be mentioned pregnancy, acute and chronic alcoholism; certain diseases of the nervous system, some functional and others organic; affections of the pancreas; exophthalmic goitre and acromegaly.

Lowered glucose tolerance is by no means a special feature of hepatic diseases; but, on the other hand, the more recent observations tend to confirm the opinion arrived at by H. Strauss [21] that a conspicuous lowering of tolerance of lævulose, as distinguished from glucose, is an important symptom in such diseases, and one of real diagnostic value in aiding the recognition of lesion of the parenchyma of the liver.

Significance of Lowered Glucose Tolerance.

Divergent views are held on the question whether lowering of glucose tolerance is to be regarded as the initial and slightest manifestation of that error of carbohydrate metabolism which culminates in diabetes, or has a wholly different significance from alimentary glycosuria ex amylo and spontaneous glycosuria. In discussing this question it must be borne in mind that where tolerance of starch is limited that of sugar is also lowered, so that these cases must be excluded from the discussion in which the two phenomena coexist.

If it be the true explanation of the fact that no dose of starch which can be taken excites glycosuria in a normal subject that the time required for the conversion of starch into sugar prevents the overtaxing of the metabolic processes at any particular moment, we may regard the difference as one of dosage, and if it can be shown that in some cases, although glucose tolerance is reduced to a very low level, glycosuria cannot be induced by starch, a strong *primâ facie* case will be made out for the essential distinctness of the two phenomena in some cases. Observations in which tolerance of starch has been tested side by side with that of glucose are not numerous, and more of such are greatly to be desired.

It is a significant fact that J. Strauss,[22] who carried out an extensive series of such observations upon patients suffering from specific fevers, and from alcoholism, by the administration of glucose, and of equivalent doses of starch, found that no small proportion of the patients tested exhibited alimentary glycosuria ex amylo, side by side with lowered glucose tolerance. Van Noorden looks upon J. Strauss's results as affording evidence that in the conditions investigated the potential glycosuria is due to implication of the pancreas.

Raphael,[23] also, who conducted an elaborate research upon glycosuria e saccharo, summed up in favour of the view that between lowered tolerance of glucose and of starch respectively the difference is rather one of degree than of kind.

Some cases of lowered glucose tolerance have developed under observation into cases of diabetes, but it would be of interest to know whether the tolerance of starch was fully tested in the early stages of these cases. That alimentary glycosuria e saccharo may be an early symptom of diabetes is undoubted, the question at issue is whether it should always be so regarded. For a final answer to this question our knowledge does not yet suffice, but this much may be confidently stated, that the fact that a patient shows lowered glucose tolerance in the course of some acute disease with which that symptom is wont to be associated, does not in any way imply that he is likely to develop diabetes later on.

The investigations of Barringer and Roper,[24] who followed up the after-history of a number of patients who had at some time exhibited spontaneous glycosuria, do not really help us to answer the question. They found that those patients who, during the sugar-free period, or after some years of immunity from glycosuria, were found when the test was applied to have definitely lowered glucose tolerance, were much more liable to become diabetic, than those whose tolerance of glucose was found to have returned to the normal level. Thus they demonstrated conclusively the value of tolerance tests in the estimation of the significance of a transitory glycosuria, and that persistent lowering of tolerance is to be regarded as a danger-signal; but their results also tend to prove that a patient may have his tolerance so far lowered that he exhibits spontaneous glycosuria for a time, and yet may be in comparatively little danger of developing diabetes, provided that his tolerance returns later to the normal level.

W. Schlesinger,[25] who is an upholder of the essential distinctness of glycosuria e saccharo, as a phenomenon not necessarily connected with the diabetic metabolic error, regards the excretion of unusually large quantities of sugar after the glucose test as affording evidence of a true diabetic tendency, a view which few will hesitate to accept. He also points out that whereas, when a particular sugar is given in excess some of that sugar appears unchanged in the urine, in some cases in which tolerance is lowered lævulose when so taken induces an excretion of glucose, and this event also he looks upon as an indication of a true metabolic derangement.

If when discussing this subject we take as our criterion of diabetes that the carbohydrate error be persistent as long as the patient lives, we beg the whole question, for, as I hope to show in my next lecture, some cases which exhibit for a time all the features which we regard as characteristic of diabetes, and even some in which the spontaneous excretion of sugar cannot be arrested by a strict dietary, do, nevertheless, end in what appears to be complete and lasting recovery. Unfortunately, these cases are so rare that we are not justified in holding out to our diabetic patients any expectation of so favourable an outcome of their ills.

[21] Deutsche Medizinische Wochenschrift, 1901, Band xxvii., pp. 757 and 786.

[22] Zeitschrift für Klinische Medizin, 1900, Band xxxix., p. 202.

[23] Loc. cit., sub. 13.

[24] American Journal of Medical Sciences, 1907, vol. cxxxiii., p. 843.

[25] Loc. cit., sub. 20.

THE PRINCIPLES OF TREATMENT IN EXOPHTHALMIC GOITRE.[1]

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I HAVE been asked on this occasion briefly to consider the general principles of the treatment of exophthalmic goitre, as it is important that these should be clearly stated as a basis for the discussion on the best means of carrying them into practice by either medical or surgical methods.

Etiology.

It is now generally agreed that the symptoms of Graves's disease are due to a thyroidal auto-intoxication. In Graves's disease the secretory epithelium of the thyroid gland is superabundant, changed in type, and over-active. Whether the secretion which results from this state of affairs is of the same strength and composition as that which is produced in health does not materially affect the problem we are asked to consider on this occasion, as the general symptoms of the disorder are brought about by the circulation in the blood of a large excess of this product, whatever its actual composition may be.

We do not, as yet, know the actual exciting cause of the special proliferative changes which are found in the thyroid gland in exophthalmic goitre. We are aware that the disease may arise under certain predisposing conditions, but these vary in different cases and in many may be wanting altogether. When we are in possession of this information so that we can induce the disease at will in lower animals, the problem of the prevention and treatment of this malady will be greatly simplified.

In the present state of our knowledge the objects we have in view in the treatment of Graves's disease are either to remove the source of the auto-intoxication or to counteract its ill-effects. The principles of treatment are therefore comparable to those which guide us in the treatment of a disease which is due to a local microbic infection, giving rise to a general toxæmia, but more difficult to carry into practice.

In some cases we know that, either as the result of treatment or in the natural course of the disease, the hyper-activity of the thyroid gland gradually diminishes, the symptoms subside, and the patient recovers more or less completely. According to my own experience this may take any period from nine months up to seven or more years, from the commencement of the disease. In some chronic cases a certain amount of tolerance gradually becomes established so that the patient is hardly aware that the disease is still present. Recovery in these cases is the result of an involution of the enlarged gland, due to an atrophy of the redundant epithelium. This atrophy may be either primary in origin or secondary to the development of a gradual fibrosis of the gland, which may even proceed to partial or possible total destruction of the glandular epithelium, as in a case I have recently seen in which the symptoms of Graves's disease were replaced within a few months by those of myxœdema. We are greatly in need of more exact information as to the conditions under which those involutionary changes take place. If we possessed this knowledge we should be in a better position to bring this natural process of cure into operation.

Methods of Treatment.

We shall now briefly review the methods which may be adopted to reduce the morbid activity of the thyroid gland to a normal level or to counteract its ill-effects, reserving the consideration of surgical measures to the last.

General treatment by means of mental and bodily rest combined with a liberal diet, of which milk forms a large proportion, tends to diminish thyroidal activity. Excess of proteid food should be avoided, as Dr. Chalmers Watson's experiments show that the structure of the thyroid gland may be modified by diet. The work of Ehrlich and Wassermann opens up the possibility of efficient remedies being obtained in the future which may have a direct and selective action on the hypertrophied gland. It is not unlikely that arsenic and belladonna, which are of proved utility, act in this way and tend to depress the activity of the secretory cells, just as iodine, on the other hand, exalts it and aggravates the symptoms. With the same object in view attempts have been made to prepare a specific cytolytic serum which would induce destructive changes in the epithelium of the gland without injury to cells in other parts of the body. Unfortunately such preparations are not really specific in action, and if used in adequate amounts they produce degenerative changes in other organs as well, and consequently may do more harm than good. X rays have been employed in order to diminish the gland.

In one of my cases who was under treatment at the Manchester Royal Infirmary 11 doses of X rays were given between Nov. 28th, 1911, and Jan. 5th, 1912, by Mr. A. E. Barclay. On Jan. 9th the right lobe of the gland was removed because one night the patient had a severe attack of dyspnœa with loss of consciousness for 10 minutes. Microscopical examination of sections prepared by Dr. W. Mair from the portion removed shows there is a diffuse interalveolar fibrosis, which, in places at any rate, appears to be of recent origin and to be the result of the action of the X rays. At the time of the operation Mr. A. H. Burgess found the capsule of the gland was unusually adherent to the trachea and surrounding parts. These adhesions were probably also a result of the use of the X rays.

Although in this case no beneficial result was obtained by X ray treatment, the microscopical changes suggest that a more prolonged course of treatment might in time bring about the desired result. The application of a mild, faradic current to the goitre for two or three hours each day possibly acts directly on the activity of the gland, as in many cases it is a useful mode of treatment.

We may endeavour to counteract the ill-effects produced by the excess of secretion in the blood-stream. For this purpose the milk, dried blood, and blood serum of thyroidless animals, especially of sheep and goats, may be employed on the supposition that the products contain some substance which acts as an antidote and neutralises the action of the excess of thyroid secretion in the blood. In many cases we have to resort to purely symptomatic treatment under special circumstances so as to deal with the special crises which arise from time to time in Graves's disease, when special measures may be applied to relieve cardiac, intestinal, bronchial, cutaneous, or nervous crises giving rise respectively to severe palpitation, diarrhœa, bronchorrhœa, sweating, and the like.

Surgical Treatment.

Finally, I will briefly mention some points in connexion with surgical treatment. As the first object we have in view is to reduce the hyper-activity of the thyroid gland, it naturally occurred to many that this could be most successfully achieved by surgical methods. This view appealed rather strongly to me when the pathology of Graves's disease first became understood, but very quickly the hazardous nature of the proceeding became apparent. The first three of my cases in which one lobe of the thyroid gland was excised—in each case by a different surgeon—all died almost immediately after the operation. After this experience I was very reluctant for long to advise any patient to undergo operation, and consequently my personal experience of surgical treatment is limited.

Two methods of surgical treatment are chiefly employed at the present time: ligature of one or more of the thyroid arteries and partial thyroidectomy. On referring to the notes of 300 of the cases which I have seen, 276 of which were women and 24 men, I find that as far as I know only 10 have been operated on. In one case both superior thyroid arteries were ligatured, and in nine partial thyroidectomy was performed. In the first three cases, which were all in women, death occurred shortly after the operation. The other seven recovered from the operation, so that of the cases I have seen in which an operation was performed the mortality has been 30 per cent. Two of these seven were men and five were women.

In one man who had suffered for nine years from severe Graves's disease, both superior thyroid arteries were ligatured by Mr. R. Morison in June, 1907, under general anæsthesia, 4½ years ago. Marked improvement has taken place, so that he can now cycle to and from his place of

[1] A paper read at a combined meeting of the Medical and Surgical Sections and Section of Anæsthetics of the Royal Society of Medicine on Feb. 13th, 1912.

business and do an ordinary day's work, but he is not cured. In the second man, whom I saw in 1909 just before he started for Canada, partial thyroidectomy was performed by Mr. Roberts, of Toronto, in May, 1911, and when I saw him the following September he was quite well and completely cured of the Graves's disease.

Of the five cases in women, in one—that of a single woman, aged 32, in whom there had been a goitre for 12 years with more recent development of secondary Graves's disease—the right lobe was excised by Mr. W. G. Richardson in June, 1907, because she complained of so much pain in it and was anxious to have it removed. The only anæsthetic used was chloroform given through the Harcourt inhaler. At the time the heart was considerably dilated and the pulse 144. She recovered, and her medical adviser, Dr. A. Smith, informs me that she is now quite well.

In another case, that of a girl aged 15 when I saw her, the operation was performed by Sir Victor Horsley, and when last I heard of the patient marked improvement had taken place.

In the case of a woman, aged 32, under my care at the Manchester Royal Infirmary, Mr. W. Thorburn on August 16th, 1910, removed the right lobe of the gland under local anæsthesia. Before the operation the pulse-rate was 130; it is now 76, and she has improved considerably in other respects, but there are still well-marked exophthalmos, some general nervousness, and tremor of the hands. The left lobe is still moderately enlarged, so that she is not cured.

In a recent case in the Manchester Royal Infirmary, already referred to, Mr. Burgess removed the right lobe on Jan. 9th from a girl, aged 18, with severe Graves's disease, because after 11 doses of X rays she had an alarming attack of nocturnal dyspnœa with loss of consciousness lasting for 10 minutes. Ether was given by the open method. Before the operation the pulse varied from 204 to 120. She has recovered from the operation and is now steadily improving, the pulse varying from 120 to 92. In another case Mr. Burgess has also this month removed the left lobe, isthmus, and lower part of right lobe on account of stridor.

Thus in six of the ten cases an operation has been done in order to relieve or cure the Graves's disease, and three of them died. In the remaining four the operation was primarily carried out for the relief of pain or dyspnœa. Of the seven survivors two are cured, four are improved, and one has just recovered from the operation.

In conclusion, I would advocate operation in all cases where there is distinct stridor from compression of the trachea or persistent pain in the goitre. In cases of a mild type I do not consider an operation is necessary. In very severe cases with marked cardiac failure the risk is too great. In a certain number of cases of moderate severity in which no adequate improvement has resulted from medical treatment fully tried for 12 months, a partial thyroidectomy or ligature of the superior thyroid arteries may be advised. The remarkably small mortality from the operation obtained by Sir Victor Horsley, Dr. T. P. Dunhill, Professor Kocher, and others clearly indicates that the grave dangers which formerly made physicians unwilling to advise operation have now been considerably reduced, so that operation can be recommended in a larger number of cases than previously appeared to be advisable.

The chief points upon which we hope to obtain further information by this discussion are the exact indications for operation, the average risk, and the results. In considering the latter and in comparing them with those obtained by other methods of treatment I would emphasise the fact that the prognosis usually given in text-books is too pessimistic, as a very considerable number of cases do either completely or partially recover without operation.

Manchester.

LONGEVITY.—The death occurred at Bexhill on Feb. 12th of Mr. John Rogers, who had attained the great age of 102. He joined H.M.S. *Romney* in 1832, was in the navy 39 years, and had received a pension for 41 years. While living at Camber, near Rye, he was coxswain of the lifeboat there. He had never been laid up in his life until seized with his final illness.

CYSTITIS: ITS CAUSES AND ITS TREATMENT.

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IN reviewing the important subject of inflammation of the bladder it will be shown that cystitis may be due to various pathogenic microbes differing greatly in their immediate action and ultimate results. The various modes of infection and the lesions produced by the different organisms will be examined, and the cystoscopic appearances and the changes produced upon the urine will be described. The complications commonly met with will be considered, and the treatment of all the varieties of the disease will be carefully and very fully discussed.

Causes of Cystitis.

Cystitis, either as a primary affection or secondary to other diseases of the kidneys or bladder, is one of the most common ailments of the urinary tract. Sometimes the onset is so mild and transitory as only to induce a slight increase in the demand to micturate, and in children or adolescents nocturnal incontinence. At other times the attack is ushered in by the most violent disturbance: great frequency in micturition with burning pain at the end of the act, and straining to expel even when the viscus is empty, so that at the termination of the effort blood squeezed from the congested mucous membrane alone escapes. These severe and local symptoms are accompanied by active disturbance of digestion, rigors, anorexia, and, of course, loss of sleep.

Whatever the degree of inflammation, it is immediately due to the propagation of pathogenic micro-organisms in the bladder, the most common varieties being bacillus coli, tubercle bacillus, streptococcus pyogenes, gonococcus, staphylococcus pyogenes aureus and albus, pneumococci, and urobacillus liquefaciens septicus, all of which are pyogenic and, with the exception of the three mentioned first, are urea-decomposing organisms.

Attempts have been made to divide cystitis into two classes—the infective and the non-infective; but while this classification may be convenient for teaching purposes, being contrary to fact, it is most misleading.

It is true that irritation of the bladder may be induced by the toxic action of drugs, such as cantharides, turpentine, and corrosive sublimate, by chemical irritants, and by crystalline deposits, but in the absence of active infective matter the irritation is transient, subsiding very soon after the exciting cause is removed; the urine remains acid and deposits only mucus, epithelium, and perhaps a small quantity of aseptic pus. But while it is universally recognised that microbes are the cause of cystitis, they are innocuous unless certain conditions are provided favourable to their propagation—namely, hyperæmia of the mucous membrane, retention of urine, or injury.

Many circumstances predispose a patient to cystitis by favouring the introduction of microbes or their proliferation after they have invaded the bladder. Under the former may be mentioned injuries to the bladder from sounding, the use of the cystoscope or urethral catheters, influenza, scarlet fever, enteric fever, diphtheria, septic and tuberculous lesions, infection of adjacent organs, and gonorrhœa; while under the latter may be included tumours of the bladder, chronic enlargement of the prostate, stricture of the urethra, foreign bodies in the bladder, paralysis of the bladder, and displacements of the uterus.

Microbes alone may fail to give rise to cystitis unless they have the power of decomposing urea. Tubercle bacilli, bacillus coli, and pneumococci may be found in the urine without any lesion in the urinary tract.[1]

The organisms which invade the bladder may be divided into two classes—those which induce decomposition of the organic constituents of the urine, and those which cause little or no chemical change in these substances. This distinction is a very important one. When organisms which do not possess the power of decomposing the organic constituents of the urine are introduced into the healthy urinary tract they fail to produce any serious effect. For example, a pure culture of the bacillus coli or of the tubercle bacillus may

[1] Renal Cases. By the Writer. James MacLehose and Sons. 1899 P. 146.

fail to induce cystitis when injected into the uninjured bladder, but if separately, or along with them, urea-decomposing organisms are introduced, acute cystitis is sure to follow. When the infection is "mixed" the progress of the disease is usually very rapid.

Excluding cases of catarrh of the bladder, where the irritation is the result of the action of chemical agents or of mechanical irritants such as vesical calculi, inflammation is the result of pyogenic micro-organisms. While aseptic chemical and mechanical irritants may conduce to the formation of small quantities of pus, the pus so formed is free from organisms, and when absorbed does not produce secondary abscesses. While this statement must be accepted, it is also obvious that the resistance of the part subjected to such continuous irritation may be seriously diminished. Consequently an injured bladder, or a bladder with a stone in it, is very liable to become septic.

Sources and Modes of Infection.

The organisms which produce morbid changes in the bladder do not differ from those found in other tissues; indeed, almost all the microbes which are pyogenic in man gain an entrance to the urinary tract, and have been discovered as causes of disease in these parts. The two most frequent sources of infection are from the intestine on the one hand and *viâ* the urethra on the other. In the former, from the blood, the organisms reach the bladder through the kidney or through the lymphatics; in the latter along the urethra.

There may be said to be three modes of infection:—

1. Ascending infection by the path of the urethra, which for obvious reasons is more common in women than in men—for example, in gonorrhœal and coli bacillus infection.

2. Descending infection or hæmatogenous infection, where the organisms are conveyed from a primary focus to the urinary tract by the blood and are excreted by the kidney. This happens in tuberculous, in typhoid, and in coli bacillus infections.

3. Transparietal infection through the lymphatics from the intestine to the bladder, as observed in appendicitis, in dysentery, and internal hæmorrhoids.

The first-mentioned channel of infection is most common in females, and in men the two latter paths are more generally followed.

The question of the mode of invasion, interesting as it may be from a pathological point of view, can only be referred to very briefly. What we desire more particularly to consider are the clinical aspects of the subject. Some notice, however, must be taken of the individual organisms in order to have a proper understanding of their mode of working, and the best methods of repelling their attack are of the first importance to the practical surgeon.

The Individual Pathogenic Organisms.

The *Bacillus coli communis* is by a long way the most common cause of cystitis—close upon 70 per cent. of the cases examined; and in the bladder, as elsewhere, its virulence varies according to circumstances. In some cases its presence causes little or no disturbance, while in other instances its virulence is great.

The bacillus coli, being absorbed into the circulation through lesions in the intestine, is deposited in the kidney or the bladder. This occurs most commonly when the intestinal tract is obviously diseased. It is found, as a matter of experience, that pyelitis, septic nephritis, or cystitis comes on very commonly in the course of convalescence from enteric fever, dysentery, or acute diarrhœa. Any injury of the intestine, or even injury of the tissues in its neighbourhood, seems to be sufficient to promote the emigration. After operations for appendicitis it is not uncommon to meet with transitory hæmaturia as a result of coli bacillus lesions in the kidney or bladder. Probably the microbes pass from the intestine very much in the same manner as serous fluid does, and from the same or similar causes; in fact, the two transudations are often coincident, but their relationship to one another is not fully understood.

The organisms taken as a pure culture from a peritonitis arising from a perforation of the intestine are found to be more virulent than when taken from a healthy intestine; or again, if the intestine be obstructed artificially the activity of the bacillus is also increased. Also, in different cases of pyelitis and cystitis degrees of virulence may be observed, and while the organisms derived from one case on cultivation and inoculation into animals may produce very mild effects, those taken from another case which appears to be exactly similar may induce very grave results. The bacillus coli seems also to have the power of increasing the activity of other bacilli or of rendering their product more harmful.

The bacillus coli produces a hæmolysin and an endotoxin, but the opsonic and phagocytic indices and the agglutination reactions are of little or no value. By staining reactions alone the bacillus cannot be distinguished from bacillus typhoid or bacillus proteus, and to identify it a culture test is required.

When a bladder containing a phosphatic stone becomes infected with bacillus coli the surface of the stone becomes honey-combed and covered with a layer of soft mucus which completely envelops it and protects the mucous membrane, and at the same time the calculus is gradually eaten into and becomes very friable, and on account of the mucous covering is difficult to discover with a sound.

Tubercle bacillus is found in the urine most frequently in tuberculous nephritis, and may cause a secondary infection of the bladder. It is seldom that the bladder is the first part of the urinary tract attacked, but primary vesical tuberculosis is occasionally met with. It is not often encountered as a complication of phthisis pulmonalis, but in association with tuberculous disease of the bones and joints it is frequently seen, and in such cases, the infection being by way of the kidneys, the base of the bladder near the ureteral orifices is first attacked. Indeed, in cases of early tuberculosis of the kidney the appearances presented by the orifices of the ureters and the mucous membrane around them are often the first indication of the renal lesion.[2]

The bladder offers considerable resistance to the attack of tubercle bacillus even when the mucous membrane is injured, as shown by experiments. Rovsing has demonstrated that tubercle bacilli injected into the bladder and allowed to remain often fail to produce a lesion. This explains how it is that in many cases of tuberculous nephritis the bladder remains healthy. But if other pyogenic organisms are present the resisting power of the mucous membrane is greatly weakened, and secondary infection is almost certain to occur.

It is more difficult to obtain the bacilli from urine than from sputum; they are less numerous in proportion to the medium in which they lie; in urine the processes of decomposition destroy them more rapidly, and smegma bacilli are apt to be mistaken for them. Koch, König, Leyden, and others have endeavoured to distinguish these bacilli from one another by staining methods but have failed. Muir, however, says: "We have found that in smegma it can be readily decolourised by a minute's exposure to alcohol, after the usual treatment with sulphuric acid, and thus can be readily distinguished from the tubercle bacillus." The former is non-pathogenic when inoculated into animals.

According to Tilden Brown, the most favourable time to look for the tubercle bacillus is immediately after a hæmaturia. This may be so, but I have found that it is in the samples of urine containing heavy purulent particles that the bacilli are most abundant, and that they are most readily found when the deposit from freshly passed urine is examined by the aid of the centrifuge. The microscope cannot be relied upon to prove a negative. In some instances the bacilli in the urine are so few in number that it is difficult, or almost impossible, to discover them simply by the microscope; in such instances inoculation experiments may help to clear up the diagnosis.

Tuberculosis can be communicated artificially to animals in many different ways—in fact, through any of the channels of access to the body. When tuberculous urine is injected subcutaneously into guinea-pigs or into rabbits it produces a typical tuberculosis within 10 or 12 days.

Normal urine when aseptic becomes absorbed without producing any evil effect, or when septic it may produce a suppurative peritonitis. If, however, the experiment is performed with care, healthy urine produces a negative result, but if the urine contains tubercle bacilli or their spores acute miliary tuberculosis is developed in the course of a few weeks, when the injection is made into the peritoneum, or if the urine be placed underneath the skin a hard tuberculous nodule is formed.

The *streptococcus pyogenes* not infrequently gives rise to septic infection of the urinary tract and brings about diffuse

[2] The Surgical Aspects of Early Renal Tuberculosis. By the Writer. Practitioner, vol. lxxxvii., No. 1, p. 8.

inflammation and suppuration. When present in pure cultures it does not decompose urea, but it is frequently associated with the presence of other organisms possessing that power; consequently it is generally found in alkaline urine. In character it closely resembles the streptococcus of erysipelas, and by most observers the two are regarded as identical.

Pneumococcus infection of the kidney may cause very acute and grave symptoms and sometimes involve the life of the patient. It is a condition which has not been sufficiently recognised, being liable to be mistaken for acute nephritis, but the appearances of the orifices of the ureters are very striking and characteristic, and not uncommonly the disease is limited to one kidney.[3]

The writer has met with a number of cases within the last five years where the disease has been unilateral, and in a few marked improvement has been obtained by incision of the fibrous capsule to relieve tension of the swollen parenchyma. While the renal lesion is usually the most serious, the bladder also becomes infected and an acute cystitis develops. The invasion is never limited to the bladder only, and on cystoscopic examination the hyperæmia is most marked around the ureter orifice of the affected kidney.

We may now consider the micro-organisms which cause decomposition of urea, and are, therefore, found in alkaline urine only.

The *staphylococcus pyogenes aureus* is one of the most virulent septic organisms and is very widely distributed, occurring in almost all suppurations, in normal saliva, in water, in dust, in the air, and especially on the surface of the skin. When it gains access to the urinary passages it rapidly propagates, causes decomposition of urea, and the alkaline urine, by acting upon the mucous membrane, reduces its resisting power and facilitates the entrance of the organism into the tissue.

Staphylococcus pyogenes albus is less malignant than the yellow form, but closely resembles it, and by some bacteriologists is regarded as a variety of the organism described above; it seems, however, impossible to transform the one organism into the other.

Besides those above mentioned, there are many other varieties of organisms found in the urine in inflammatory diseases of the urinary tract, but these are the most important.

Gonococcus is often associated with cystitis, but whether it does by itself cause inflammation of the bladder is still a question unsettled. Doubtless it causes inflammation of the seminal vesicles, which is liable to be mistaken for prostatitis, and gives rise to troublesome symptoms, sexual neurasthenia, spermatorrhœa, occasional pain in micturition or on pressure on the perineum. These phenomena are magnified by the patient, and their treatment may require much care. If the infection become a mixed one the disease is very likely to extend to the bladder.

Mixed infections are generally more virulent than pure ones. For example, a simple gonococcus, bacillus coli, or tubercle infection may for a time remain quiescent or cause little trouble when pure, but if contaminated by any of the urea-decomposing organisms an immediate change is observed by marked increased activity of the disease.

Classification.

The classification of cystitis according to the nature of the infection may be a strictly accurate one from the pathological point of view, but from the practical side it is more convenient to group the cases in relation to the severity of the symptoms—in other words, not according to the individual organisms giving rise to the malady, but according to the amount of disturbance produced by their propagation. As has been already pointed out, the same organism may in one case produce very little discomfort, while in another case the symptoms may be very severe and prolonged.

Cystitis may be (I.) mild, (II.) severe, or (III.) chronic.

I.—*Mild Cases.*

Juvenile incontinence or involuntary nocturnal micturition in children and adolescents is frequently due to a mild infection of the bladder by colon bacilli, which may give rise to symptoms of a general character liable to lead the medical attendant astray as to the cause of the trouble. Following upon an attack of measles, colitis, or appendicitis, or consequent to chronic constipation or persistent diarrhœa, the bladder of a child becomes infected.

Another fruitful source of infection in female infants is napkins. A careless mother or a nurse, in place of supplying clean napkins, simply dries the soiled ones, using them several times without washing. These cause scalding of the perineum and adjacent parts, including the vagina and urethra, followed by symptoms of cystitis. When the attack subsides a certain amount of bladder irritation remains, and as the patient passes from infancy to childhood nocturnal incontinence manifests itself, and very commonly the sufferer is blamed for carelessness not her own by those who should not have allowed the infection to have taken place.

Nocturnal incontinence in young girls (not in boys, with them the trouble is due to other causes), which continues in spite of all care and treatment, becomes a source of anxiety and annoyance to the parents, as well as of discomfort and discredit to the child. During deep sleep urine is passed, and the child is conscious of its escape only when she awakes. The flow is not because of inability of the bladder to retain an ordinary quantity of urine, but rather to undue readiness to contract when the reflex action of the vesicular muscular coat is uninfluenced by the will.

When due to extrinsic causes such as caruncle, fissured anus, rectal polypi, hæmorrhoids, ascarides, thread worms, &c., the infirmity usually disappears when the cause is removed, and in other instances as age advances it becomes less and less troublesome. In a few cases, however, the incontinence continues till puberty or even after that period has arrived. Often these patients are highly impressionable, so-called "neurotic," and this is blamed for the continuance of the "bad custom." It is supposed that the "habit" has been accidentally set up, and its persistence "may result solely from repetition through the force of custom, long after the original cause has disappeared."

While this view may possibly be true in a few instances a more probable explanation is that the nervous symptoms and the incontinence are the result of a common cause—namely, bacillus coli infection of the bladder—the former symptoms being due to a mild toxæmia, the latter to an irritable condition of the neck of the bladder. Cystoscopy shows in many of these cases a congested neck and slight hyperæmia of the mucous membrane, the urine contains an undue quantity of clear mucus, a deposit of epithelium, and bacilli coli. On adopting local treatment, which will be referred to later on, the disagreeable symptoms disappear.

Cystitis of pregnancy is usually met with in young women about the fifth or sixth month, and is moderately acute as a rule but sometimes severe. Those who are familiar with the varying conditions and reactions of urine of different healthy individuals, and of the same person at different times, must have observed that some samples undergo decomposition with great rapidity, while others remain unchanged for a considerable time. This remark refers only to urine which is sterile when passed. The tendency to early decomposition of urine in such cases is due to the excretion containing waste products capable of easy decomposition. Consequently we find that when a woman is suffering from imperfect digestion, nervous disturbance, or constipation, the urine decomposes early. It is probable that during pregnancy the excretion is modified considerably and is rendered a more suitable medium for the proliferation of organisms.

Since the time of the ancients changes in the urine have been noticed, as well as other phenomena having their origin in the glandular system; but even now the particular liability of the bladder to bacillus coli infection during pregnancy has not been sufficiently emphasised. The onset of the attack is generally associated with a history of chronic constipation and engorgement of the colon. The onset is sudden—an acute rigor, discomfort over the bladder and hypogastrium, painful and frequent micturition, temperature elevated and irregular, pulse rapid, and tongue furred. Soon the patient complains of widespread pain in the back, loss of appetite, headache and depression, and all the symptoms of toxæmia. On examination complaint is made of pain on pressure over the kidneys and bladder. The kidneys are found to be enlarged, and there are tenderness and rigidity of the lumbar muscles, and leucocytosis, polymorphs, and red blood corpuscles show evidence of anæmia. The urine is acid, smoky, contains some albumin, pus, and squamous

[3] See Brit. Med. Jour., March 31st, 1906.

epithelium. The odour is not offensive at first, but on standing soon becomes so.

These cases generally recover in a short time from the acute symptoms, but they are referred to here because, unless care be taken to effect a complete cure, women so attacked during pregnancy are liable to suffer after delivery from continued irritation in the bladder, which is only too liable to be left unheeded. Often the symptoms are so severe that the family doctor suspects stone, but not finding one on sounding, satisfies himself, but not the patient, with palliative treatment, which is totally inadequate for the condition. An examination shows the symptoms to be caused by inflammation of the neck of the bladder or the urethra. This disease may also cause caruncle, but when it is removed the symptoms are not completely relieved.

Chronic inflammation of the neck of the bladder and ureteritis, beginning in an attack of cystitis during pregnancy or just after delivery, is the most common cause of bladder irritation in women. It is due to bacillus coli infection, and must be regarded as one of the most fertile sources of ascending pyelitis and pyonephrosis.

II.—*Severe Cases.*

In acute cystitis the symptoms are constitutional and local, and may be due to pneumococcus, streptococcus, bacillus coli, gonococcus, or tubercle bacillus. The onset is sudden, often with a rigor, the temperature is raised and may be distinctly febrile; the pulse is rapid, and the tongue is coated, the digestion disturbed, the stomach and intestine distended with gas, and the bowels constipated.

The patient is unable to sleep because of the pain and frequent calls to micturate. As soon as the desire comes it must be gratified—the urgency is sudden and imperative. During the act the discomfort is great, but it is at its termination and for a variable time thereafter that the burning pain is most severe. The patient not only strains to get rid of the last drops of urine, but there is tenesmus.

This is the most important symptom. The bladder contracts powerfully, but the sphincter contracts as well, so that for a time nothing happens; the viscus cannot be emptied. Then the spasm at the neck of the bladder yields for a moment or two, and a few drops of urine are permitted to escape. Repeated evacuations of this kind occur and are associated with severe pain in the rectum, the perineum, and the point of the penis. After the viscus has emptied itself its muscular wall continues to contract and squeezes from its congested mucous membrane a few drops of pure blood.

Between the acts of micturition the patient suffers from a dull, aching pain over the pubis, which is increased on pressure and by the gradual filling of the bladder, and as the organ becomes distended a sense of weight and tenderness develops in the perineal region.

The urine is either acid or alkaline, according to the nature of the infection, and not, as it sometimes is stated, according as there is free escape or obstruction to the flow of urine. If the organism be a urea-decomposing one the urine is alkaline, cloudy, contains a large quantity of mucus and pus, some blood which is not readily thrown down, and probably also crystalline deposits of phosphates and urates of ammonia; but if the inflammation be due to the presence of bacillus coli, tubercle bacillus, or pneumococcus the urine remains acid for some time after being passed, is cloudy, contains little mucus or pus, and what blood is present deposits readily, along probably with oxalate of lime or uric acid crystals.

Cases of acute cystitis do not call for a cystoscopic examination unless the presence of a foreign body is suspected. The cystoscopic appearances depend upon the stage of the disease and the character of the infection, but these will be described later on.

Cases of acute cystitis generally recover under suitable treatment in ten days or a fortnight, but occasionally while the constitutional disturbance subsides the local symptoms continue in a less pronounced form. Should this be so an inquiry must be made as to the cause. There may be some obstruction to the escape of urine from the bladder—stricture of the urethra or enlarged prostate in the male, displacement of the uterus in the female, and vesical tumour or stone in both sexes. Or, as is frequently found, the urine remains infected, and unless careful local treatment is adopted the disease becomes chronic.

III.—*Chronic Cases.*

Chronic catarrh of the bladder is often the result of some blockage to the escape of urine; but, on the other hand, not infrequently it is the cause of obstruction.

Gradually increasing hindrance to the escape of urine leads mechanically to certain changes in the bladder, quite independent of any inflammatory action. The pathology may be considered according as we have: (1) Obstruction without inflammation; (2) inflammation with obstruction; and (3) inflammation without obstruction.

1. *Obstruction without inflammation* of the bladder is probably best seen in chronic cases of urethral stricture or enlarged prostate. In studying the changes care must be exercised in selecting cases where there has been no history of bladder trouble, and where catheter specimens of the urine are sterile, otherwise the problem becomes confused. Certain changes may be induced by obstruction alone, others only when the blockage to the escape of urine is associated with infection of the bladder. Simple obstruction to the escape of sterile urine leads to three changes only—dilatation of the bladder, atrophy of the mucous membrane, and sometimes to moderate hypertrophy of the muscular wall. Stagnation alone cannot cause cystitis; it predisposes to it only.

2. When the *obstruction is complicated by infection* of the bladder even to a mild degree, as seen in some forms of bacillus coli invasion, the retardation to the escape of urine produces graver changes. Not only are there calls for increased power of expulsion, which is met by hypertrophy of the muscular coat, but, acting upon an inflamed and softened mucous membrane, increased tension of the urine within the bladder during micturition forces the mucous membrane outwards between the muscular trabeculæ, which form a prominent network. By this process the interior of the bladder may become very irregular and small adventitious sacs may project beyond its wall.

3. *Inflammation of the bladder* is marked by hyperæmia of the mucous membrane and rapid cell proliferation in the connective tissue. This produces thickening of the whole wall of the viscus, together with fatty degeneration of the muscular elements, so that the usual trabecular appearance may be obscured by the thickening of the mucous membrane. The cavity of the organ may undergo considerable contraction, and when exposed through a suprapubic wound as much as a third of an inch of bladder wall may require to be cut through before the cavity is opened. The perivesical veins are found to be greatly gorged and the fat around the organ increased in amount. If the organisms are urea-decomposing ones the surface may become encrusted with phosphates and eroded. Usually ulceration indicates either tuberculous or malignant disease, especially if the ulcers are large in size or irregular in form.

Cystoscopic Appearances.

Cystoscopic appearances vary according to the nature of the infection, the stage of the disease, and the complications accompanying the cystitis.

In *mild bacillus coli infection*, such as gives rise to nocturnal incontinence in girls and young women, or in that so often associated with pregnancy, comparatively little change can be seen in the appearances of the interior of the bladder. The most notable lesions are congestion and swelling around the neck of the bladder and in the area of the trigone; elsewhere the mucous membrane is often anæmic, and here and there may be noticed little islands of less congested mucous membrane.

When caused by *gonococcus* the mucous membrane is deeply congested, swollen, and thrown into irregular folds. This is most marked close to the neck; elsewhere the mucous membrane may be simply streaked, and here and there may be seen small submucous hæmorrhages.

In *acute cystitis from pneumococcus* the infection of the bladder is always secondary to that of the kidney, and as a rule the inflammatory changes are not very marked, being limited usually to the orifices of the ureters and the trigone. The vessels are very distinctly seen, being clearly mapped out; the congestion is patchy, but there is not much œdema or swelling of vesical mucous membrane. There is no ulceration or hæmorrhage.

Acute cystitis arising from streptococcus infection differs from those above described in that the inflammation is more widespread. The urea-decomposing organisms rapidly set up serious changes in the bladder, and if the condition be

not relieved within a short time it may lead to very serious consequences. The meatus is usually contracted, the mucous membrane swollen, congested, and pouting from the opening so that the cystoscope is introduced into the urethra with difficulty, even although under normal conditions the lumen of the canal may be good. The urine is blood-stained, and on attempting to introduce fluid into the bladder it is at once expelled. By using an anæsthetic a view may be obtained, when the whole surface of the mucous membrane will be seen to be of a dark-red or purple colour. It is swollen, often numerous submucous hæmorrhages are seen, and in some places ulceration may have taken place.

In *chronic cystitis due to bacillus coli* the symptoms are frequently troublesome and difficult to get rid of, but as a rule the changes seen in the bladder are not serious; indeed, these are often surprisingly slight, and may be limited to the base and neck. Patchy congestion without much thickening of the mucous membrane is the most common change from the normal, and unless the observer has considerable experience the lesion may escape notice. The bladder may be infected for years with a mild variety of bacillus coli, giving rise to much discomfort, without showing very obvious evidence of disease beyond what has been described above until enlargement of the middle lobe of the prostate leads to obstruction. This change in the prostate is very commonly preceded by a bacillus coli invasion of the bladder. In the majority of cases, however, the mucous membrane is congested and covered with thin flakes of muco-purulent material.

In *primary tuberculous cystitis* the vessels ramifying the mucous membrane are obscured and the cytoscopic field is often ill-defined, probably due to œdema of the mucous membrane. The surface may be unduly pale elsewhere than in the immediate neighbourhood of the tuberculous infiltration. The deposit may be in the form of short bands, or in irregular patches which are generally covered with thin pale flecks of mucus or necrosed mucous membrane. When these are removed by washing an irregular eroded surface is seen, surrounded by a zone of hyperæmia. These tuberculous lesions are most commonly observed on the posterior and superior aspects of the bladder. Little tuberculous pustules may be seen or small caseous masses.

Chronic tuberculous cystitis presents a very varied appearance to the cystoscope. In cases of primary tuberculous cystitis the mucous membrane may be moderately injected and the vessels in its walls more numerous than normal. Extending along the floor of the bladder there may be a pale mass not unlike œdematous granulation tissue, and in it a number of small, white, or grayish yellow nodules or caseous points, some of which may be breaking down and discharging flaky pus. Or the lesion may appear as small caseous masses covered by very thin mucous membrane. These nodules may be round, oval, or sausage-shaped, the most prominent part being almost white in colour, while the immediate surroundings are bright red and contrast markedly with the anæmic mucous membrane of the bladder. Or the tuberculous process may begin by the formation of tubercles in the mucous membrane, and these, breaking down, form in a typical manner the so-called lenticular ulcers characterised by a flat base covered by caseous matter and sharp ragged borders, within which little miliary nodules are situated.

In the earlier stages of secondary infection irregular patches of hyperæmic mucous membrane are seen in the trigone or neighbourhood of a ureter orifice, and are covered by grayish-white flakes partly loose, partly adherent to the eroded surface. In other areas there may be small ulcers, covered by sloughs, while the margins of the ulcer are deeply injected and of a bright red colour. The smaller ulcers may be rounded, with minute caseous areas in their centre.

In the more advanced cases of tuberculous disease the whole of the mucous membrane becomes thickened and more or less eroded, the ulceration is widespread, and the ulcers vary much in form and appearance. They are, however, generally rounded and encircled by rings of deeply injected mucous membrane, covered with blood-clot or by bright yellow sloughs. The necrosed patch may appear of a bright green colour and have an irregular yellow ring close to its margin. In extreme cases, where a mixed infection has taken place, almost the whole surface of the mucous membrane may be destroyed.

While at first circular, by coalescence the ulcers may acquire various irregular forms. Their favourite seat is—probably on account of the mode of infection—the trigone and fundus of the viscus. In 73 cases the situations occupied were: the trigone, 21; the orifices of the ureters, 23; the base, 12; the posterior wall, 10; the neck, 4; and the anterior wall, 3.

The Urine.

In the beginning of a cystitis, especially when due to infection by bacillus coli or tubercle bacillus, the urine is little changed from normal; but, if the inflammation be acute, red blood corpuscles, epithelium from the bladder, and the organisms causing the irritation will be found. Also, in practically all cases the quantity of mucus is increased—to a slight degree in infection by the organisms found in acid urine; very greatly increased if the urea-decomposing organisms be present.

Pyuria.

Pyuria is the most important physical sign of cystitis as well as of inflammatory lesions in other portions of the urinary tract, and for diagnostic purposes it may be well to study the appearance of pus in the urine in detail.

The aspect imparted by the addition of pus varies according to the amount present and the character of the other morbid constituents in the urine. In cases where the pyuria is due to septic lesions of the kidney only the pus appears as a thick, opaque, creamy sediment, which on standing is rapidly and almost completely precipitated from an acid urine; the supernatant fluid is comparatively clear, is free from mucus, and does not decompose rapidly. On the other hand, where the pus is derived from the bladder alone, or in conjunction with a renal lesion, pus is not deposited quickly; when it falls it is precipitated along with glairy mucus, the urine in which it remains partly suspended is alkaline, and decomposition often begins before the urine escapes from the bladder.

The time at which the pus appears in the stream should be ascertained if possible. The appearance of pus at the beginning of micturition, during the whole flow, or at the end of the act only, lends additional significance to the symptom. For differential diagnosis the three-glass test is the best. The patient should first pass into glass A an ounce of urine, into glass B the bulk of the contents of the bladder, and into glass C the last ounce or so. These three samples should be examined separately.

Suppose the patient has a posterior urethritis or chronic prostatitis, the muco-purulent matter lodged in the urethra is washed into the first glass, while the second sample is free from pus or blood. In cases of cystitis the amount of foreign matter is the same in all three samples, unless when there is ulceration at the neck of the bladder or a stone is present. In these circumstances the last few drachms of urine may contain more blood or pus than that passed earlier.

Pus from the urethra, as in hæmaturia from the same situation, escapes independently of micturition, or is only mixed with the first few drops of urine—in fact, together with the presence of pain in the region is usually sufficient to determine its origin. In such instances the quantity of pus is usually small, and appears in flakes or threads. These are casts of ducts leading into the urethra, or threads of pus and macerated epithelium from granular patches swept away in the first portion of the stream. These urethral casts or shreds must not be mistaken for somewhat similar discharge occasionally observed in tuberculosis of the urinary tract. When urethral in origin they can be expressed from the canal before and after micturition. When the inflammation is situated in the posterior part of the urethra it may give rise to vesical irritation and some obstruction to micturition. The diagnosis can generally be cleared up by pressure upon the urethra in the perineum or rectum towards the end of micturition, when pus is found to exude.

It is otherwise in *catarrh of the bladder*, in which case the pus only escapes mixed with the urine; it is more or less abundant, and is accompanied by a number of large vesical epithelial cells. Vesical catarrh is generally associated with considerable pain on micturition and inability to retain urine for any length of time. A small quantity of pus in an acid urine is not necessarily of much significance, as it may be due to the slight catarrh caused by bacillus coli seen so frequently in uterine and ovarian disease, but it may also be one of the earlier symptoms of tuberculosis. The urine is generally of a pale greenish-yellow colour and the pus is

deposited on the bottom and sides of the glass in waves, the thickness of which diminish from below upwards. When the irritation is more severe, and especially when due to the action of urea-decomposing micro-organisms, not only is the quantity of pus increased, but much mucus may be secreted. So long, however, as decomposition does not occur, the pus and mucus separate as distinct deposits on standing, but if the urine becomes alkaline before evacuation the pus becomes thick and glairy, and remains suspended along with the mucus. To establish the fact that there is cystitis is not sufficient; the cause of the altered condition must be determined, and this may be done by a cystoscopic examination.

Hæmaturia.

Hæmaturia may be present or absent in uncomplicated cases of cystitis, and, as a fact, is not of so great diagnostic value as pyuria. It is important to observe the time at which the blood appears in the stream, and in order to do this it is necessary for the surgeon to see the patient urinate, and to observe whether the colouration is equal during the whole continuance of micturition, or is more abundant at the beginning or at the end of the act. The appearance of blood at the beginning of micturition, the remainder of the flow being clear, may be an indication of two distinct conditions—the lesion is either in the prostate, close to the neck of the bladder, or a malady or injury is present in the urethra.

In some lesions of the prostate the blood may pass into the urethra and accumulate there; so also in lesions of the first portion of the urethra the blood may flow backwards into the bladder and mix with its contents. When the blood originates in the urethra and accumulates there, or when it escapes from the prostate and flows into the urethra, the hæmaturia is limited to the beginning of micturition, but if the quantity of blood be great and flows backward into the bladder and mixes with its contents, then the whole of the urine becomes more or less coloured. Again, in a lesion at the neck of the bladder giving rise to hæmorrhage the hæmaturia is not limited to the beginning of micturition, but blood is also observed to escape at the end of the act. This is easily explained: between the acts of urination the blood accumulates in the urethra or close to its internal orifice, and is expelled with the first few drops of urine only, that following being clear; but again, before complete contraction of the bladder occurs a fresh hæmorrhage is induced, which shows itself in the urine last ejected.

When the hæmorrhage is due to injury or disease of the urethra the nature of the lesion is generally clearly indicated by the circumstance that the blood is observed to escape quite independently of micturition; sometimes, indeed, blood is seen to flow from the meatus spontaneously. In cases of tumour of the bladder, and also in vesical calculus, the hæmorrhage is most profuse at the end of micturition.

In acute cystitis the hæmorrhage is not severe, although almost pure blood may escape at the end of the act of micturition; but in chronic inflammation with ulceration large quantities of blood may be lost, and is ultimately mixed with a highly purulent and decomposing urine. In many cases of hæmaturia the only abnormal constituent in the urine is blood, while in other cases it is mixed with pus, mucus, tuberculous material, portions of tumours, or micro-organisms. The mixture of the blood with deposits of another kind requires only to be mentioned here. The three most common are pus, mucus, and tuberculous débris.

If the urine is placed in a conical glass and allowed to stand for a few hours, and the glass is then held up to the light, if pus be present in any great amount the deposits will be found in distinct layers like geological strata; the bottom of the glass is occupied by a yellowish deposit which may be more or less blood-stained pus, or, in some cases of renal pyuria, the pus may carry down almost all the blood corpuscles so as to leave an almost quite clear supernatant fluid.

When mucus is present, on the other hand, not uncommonly the blood corpuscles may be thrown down first, forming a layer at the bottom of the vessel, and following on this may be seen a layer of glairy gelatinous material, which may have a reddish tint or may contain a multitude of minute bloody streaks which intersect it and penetrate into all parts of this gelatinous layer. In such cases the hæmorrhage is usually due to some lesion in the bladder, and the presence of such an amount of mucus is generally indicative of a more or less acute vesical catarrh from infection by urea-decomposing organisms.

The tuberculous deposit can only be distinguished by microscopic examination or by inoculation experiments. Beyond demonstrating the presence of blood-casts of the uriniferous tubules, the microscope may reveal the existence of other elements of consequence in the deposit. For example, the character of the epithelium as derived from the renal parenchyma, from the pelvis, the ureter, or the bladder may greatly assist one in diagnosis; or, on the other hand, should the urine contain small fragments of tumours, parasites, or bacteria the hæmorrhage may be explained.

Complications.

Complications of cystitis are various; some may be regarded as causes, others as effects of the inflammation.

For example, a *calculus* may be either the effect of cystitis, or the cause. Subacute or chronic cystitis has existed for a considerable time; there may be inflammatory enlargement of the prostate as the result; small hæmorrhages occur and a calculus forms around a blood-clot. In such a case the removal of the stone does not cure the cystitis—further treatment is required.

On the other hand, a stone enters the bladder from the kidney; after an interval symptoms of irritation develop—are increased by exercise and relieved by rest. Over-exertion sets up an acute cystitis, the urine is acid, the patient experiences immediate benefit from complete rest, and removal of the stone is at once followed by cure.

The same remarks apply to *enlargement of the prostate.* The cystitis may be primary, leading to an inflammatory increase in the size of the gland, or the obstruction and stagnation caused by hypertrophy of the prostate may predispose to septic infection of the bladder. When the former condition exists the rest obtained by a suprapubic drain generally effects a cure, whereas in the latter removal of the prostate is indicated.

Urethritis involving the upper third of the canal is a very common cause of painful and frequent urination in women, and can only be detected by examination with the urethroscope. When discovered and suitably treated an immediate cure is effected. This will be referred to under treatment.

Hypertrophy of the muscular wall of the bladder has already been mentioned as a result of chronic cystitis, but while the two conditions are frequently associated, as a rule there is added to the inflammatory changes obstruction to the escape of urine. Two forms of hypertrophy, the eccentric and the concentric, are described. In the former the capacity of the bladder is increased, in the latter it is diminished, but in both the trabeculæ may dilate and extend towards the serous coat forming little pockets. These diverticula are of clinical importance, as they greatly complicate the treatment of cystitis.

Also, *sacculation of the bladder* is a most serious complication in all operations upon the viscus; it is unfavourable in lithotomy, and in lithotrity is a source of danger as well as a cause of failure. The reason is easily found.

As a rule, sacculated bladder is met with in cases of long-neglected retention of urine, from chronic stricture, enlarged prostate, or other obstruction to the exit. This not only calls for increased power of expulsion, which is met by hypertrophy of the muscular coat, but also means greatly increased tension of the urine within the bladder during micturition. The hypertrophy of the muscular bundles is easily seen with the cystoscope; they raise up the mucous membrane in elongated ridges, interlacing with one another. But while the muscular trabeculæ form a prominent network, little spaces are left between them where the mucous membrane is badly supported. Consequent upon high tension of the urine during micturition, the inflamed and softened mucous membrane is forced outwards, and ultimately becoming free of the muscular coat, a sac projects beyond the wall of the bladder.

This adventitious sac, having no muscular wall, is not emptied during micturition; the urine in it decomposes and inflammation follows. There is a rapid proliferation of soft connective tissue which steadily yields to the internal pressure, and ultimately the secondary sac may assume proportions equal to that of the bladder from which it originated. The sacs may be numerous but small, or they may be few in number and large in size. In both circumstances they may

become the depositories of decomposed urine, which cannot be washed away or spontaneously evacuated.

To the surgeon the danger and difficulties associated with sacculated bladder are numerous. The retained decomposing urine produces toxic effects very prejudicial to the welfare of the patient, in view of an operation. Not only cystitis, but even peritonitis, may be induced as a result of even trivial interference with the bladder, and when the walls of the sac are attenuated rupture of its wall may be readily caused by undue distension by urine or by fluid used in washing out the bladder.

Instances are recorded in which the diverticulum has protruded into the vagina and contained a calculus which was removed, the sac excised, and the neck ligatured with a successful result, and the writer has published several cases where calculi have been completely hidden for a time in vesical diverticula. During the operation of lithotrity fragments of the stone are very liable to find their way into these recesses, where their removal becomes impossible by any process of washing. On account of the decomposition and stagnation of the urine large-sized calculi are liable to form, or a vesical stone may drop into the pouch and escape detection with the sound or even with the cystoscope.[4]

Atony of the bladder.—The power of the bladder to expel urine may be diminished or lost as a result of atrophy of the muscular coat, and the walls of the organ become expanded, thinned, and weakened. This may occur in the absence of any mechanical obstruction, and is due to vascular, myogenic, neurogenic, or toxic causes—most commonly the latter. It is frequently met with in elderly men, and is liable to be attributed to the prostate, if that organ is at all enlarged, even although the gland is not causing obstruction. They are veritable prostatics without prostatic obstruction. The bladder is void of trabeculæ, but its wall is sclerosed and the muscular elements degenerated.

Pericystitis may arise in connexion with diverticulum of the bladder and may be due to exudation of the contents of the viscus through its attenuated walls or to rupture of the pouch. The exudation may become absorbed, but as a rule it goes on to suppuration. The attack is associated with fever, pain, and often with retention of urine caused by displacement of the bladder, the result of pressure.

Palpation detects a swelling above the symphysis, or posteriorly through the vagina, or in the male through the rectum, and when the bladder is emptied by catheter the swelling and percussion dulness persist. When the lower aspect of the bladder is involved the exudation may obscure the anatomical outline of the prostate or of the seminal vesicles, and, when a sound is passed into the bladder the viscus is found to be lifted away from the rectum. In some instances the perivesical abscess may rupture into the intestine and a fistula becomes established. When this happens the urine will contain fæcal matter and gas will find its way into the bladder.

The renal complications of cystitis are always serious and frequently the immediate cause of death. The organisms are, to begin with, parasitic to the bladder alone, and they or their toxins are not absorbed into the body of the host in sufficient quantity to cause serious disturbance until some other agency supervenes—a mixed infection occurs, the patient is attacked by some debilitating disease such as influenza, he has been called upon to retain urine beyond the normal limit, or he has sustained an injury. Any of these, among many other causes, may be the determining influence in exciting a sudden extension of the infective processes.

Infection may pass upwards along the lumen of the ureter, or by the lymphatics, and induce secondary inflammation of the pelvis or of the parenchyma of the kidney. Very acute pyelonephritis may follow upon infection from old-standing disease of the bladder, so that mild sepsis of the lower portion of the urinary tract, although of no immediate danger in itself, by threatening the kidney it is a continual menace to the life of the patient.

(To be concluded.)

[4] Demonstration of a Series of Cases of Disease of the Bladder, Glasgow Medical Journal, September, 1907.

Sir George Beatson, K.C.B., will deliver a lecture at the Medical Graduates' College and Polyclinic on Tuesday next, Feb. 27th, at 5.15 P.M., on "Treatment of Acute Appendicitis: When and How to Operate." The lecture will be open to all members of the profession.

THE INTESTINAL FLORA.

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I. COMPOSITION OF INTESTINAL FLORA IN NORMAL STATE.

VERY little is known of the composition and of the functions of the normal intestinal flora of man. I propose here to give a brief summary of the results of my researches, which extend over a period of three years, and the details of which will appear soon *in extenso*.

The practical result which I aimed at was to enable one by the simple microscopical examination of fæces to recognise the predominance of one micro-organism or another, and thus to be able to form an opinion of the way in which the flora acted. Here it is better to deal with groups, since many organisms of the intestinal flora closely resemble each other in their biological properties.

The following are the chief types which I have marked out:—

Chief Types of Intestinal Flora.

A. *Gram-negative Bacilli.*

1. *B. coli group* (B. coli Esch., Durham, B. lactis aerogenes, B. acidi lactici, B. paracoli, B. proteus, B. pyocyaneus, &c.).
2. *B. variabilis group* (anaerobic bacilli with round extremity).
3. *B. rigidus group.*
4. *B. thetaiotaomicron group* (bacilli very polymorphic, with elliptical form).
5. *B. praecutus group* (bacilli swollen in the middle and pointed at the extremities).

B. *Gram-negative Cocci.*

These can be classified under three groups:—

1. *Sarcina citrea group*, very common in the mouth and in the fæces, similar in appearance to the gonococcus.
2. *Diplococcus orbiculus group*, which are strictly anaerobes.
3. *Parvulus group*, strictly anaerobic small cocci.

C. *Gram-positive Bacilli.*

1. *B. acetogenes group.*—The greater number of the Gram-positive bacilli belong to this group. The B. acetogenes β is the chief representative, since the B. bifidus and acetogenes α are very rare in the fæces examined in London.
2. *Streptobacillus group.*—This microbe always exists in the intestinal flora.
3. *Diplob. acuminatus group.*—An anaerobic bacillus. It produces butyric acid.
4. *B. perfringens group.*—An anaerobic microbe. It produces enormous quantities of butyric acid.
5. *B. œdematis maligni group*, with the B. sporogenes (Metchnikoff).
6. *B. rodella group.*—Anaerobic group of very long bacilli.
7. *A lemon-shaped bacillus*, which is stained by iodine and is described by the author as being a butyric acid producing microbe. It has not yet been obtained pure.

D. *Gram-positive Cocci.*

1. *Enterococci group*, in chains, less frequently diplococci.
2. *Small cocci group.*—Are also to be seen corresponding in size to the coccus Banani, to the staphylococcus pyogenes, and to the staphylococcus saccharolyticus.
3. *Streptococcus intestinalis group.*—This group contains the streptococci of Hirsch-Liebmann.

In addition three kinds of *spores* are to be found.

1. Oval spores, rather large, which may belong to the B. sporogenes and to other
2. Round spores, which may belong to the B. putrificus (Bienstock-Tissier) or to the bacillus of Rodella and to the B. alkaligenes anaerobicus.
3. Very small spores, strongly refractile, belonging to the B. perfringens.

These species may be identified by simple microscopical examination.

It is very evident that, as the nitrogenous substances diminish, the bacteria in the intestine become more abundant and the species more numerous. This fact is difficult to explain if we do not consider a factor of great importance—intestinal stasis. When this is present the conditions which obtain in the colon may be compared to those in the test-tube. Another factor in the large intestine is the absence of sugars. I have shown in my paper on intestinal putrefaction that the large bowel does not contain either albumin or peptone. It contains only derivatives of the latter substance, and the microbic flora present in the large bowel must adapt itself to these surroundings. We find on studying the biology of the organisms that it is the indol-forming organisms which predominate.

From this point of view I have classified the intestinal microbes as follows:—

A. *Non-Indol-forming Organisms.*

1. *Amylolytic organisms.*—They produce sugar from starch.
2. *Saccharolytic organisms.*—We divide this group according to the principal acid found in the culture—
   (a) *Acetogenic.*
   (b) *Butyric.*
   (c) *Lactic-acid-producing*, but this group does not exist in the intestinal flora.
3. *Asaccharolytic organisms.*—These do not touch the sugars with the possible exception of a very slight action on glucose.
4. *Gelatinolytic.*—These dissolve gelatin, but they do not act upon coagulated albumin.

B. *Indol-forming Organisms.*

1. *Amylolytic.*
2. *Saccharolytic.*
   (a) *Gelatolytic*; (b) *Peptolytic.*
3. *Asaccharolytic.*
4. *Proteolytic.*

This classification allows us to group the organisms according to their functions—that is, those which produce indol and its congeners and those which have not this property. Moreover, we are enabled to include in definite groups those organisms having similar biological properties with respect to their functions *in vivo*. This grouping leads to the important fact that the organisms of groups having similar biological properties can replace one another, which I have found to occur in changes of nutrition and in pathological conditions. (In the human flora I have never succeeded in finding organisms which act upon cellulose. In fact, I do not believe any exist, for on inoculating tubes with filter-paper (Berzelius) in a saline medium the paper is broken down, but not dissolved.[1])

The organisms mentioned above are constantly present in the intestinal flora of adults in the normal state; they are also found in the first stage of intestinal putrefaction. It may be objected that this flora contains organisms capable of hindering putrefaction—for instance, the B. coli. This, however, is difficult to conceive, since in the colon there are no sugars, and therefore these microbes lack an essential requisite in order to exert their beneficent action. I explain more fully in another paper the value of this fact with reference to the intestinal flora.

The flora of the normal adult, therefore, is certainly harmful, and, far from defending the organism against infection, it may be said to help it.

It appears from the peculiar grouping of the microbes found in the colon that the digestive functions as carried out in the large bowel are different from those that take place in the rest of the intestinal tract, because in the colon indol and other bodies belonging to the heterocyclic and aromatic series are elaborated and absorbed. These bodies, when absorbed, severely tax the functions of the body and therefore of the liver. This fact may throw some light on the etiology of diseases of the liver.

Moreover, these bodies elaborated by the normal intestinal bacteria are not able to induce peristalsis, in which they differ from those produced by the intestinal flora of breast-fed babies; on the other hand, they may have an inhibitory action on intestinal peristalsis or may even irritate the mucous membrane.

These facts lead to the conclusion that the normal flora in adults, besides exerting no beneficent action, may be of itself, under certain conditions, distinctly dangerous, predisposing to constipation or diarrhœa. This I propose to prove in the following remarks.

II. On the Intestinal Flora in Constipation.

In the foregoing observations on the intestinal flora of normal adults I have established the fact that the indol-forming organisms are the most prominent and therefore they cannot be considered as harmless.

The researches which I have undertaken, and the details of which will shortly be published, demonstrate the relations between the intestinal flora and constipation on the one hand, and on the other the relations between the processes which go on in the large intestine and the resultant auto-intoxication. From this it follows that since constipation gives rise to these consequences, and since these poisons are elaborated in the colon, the exclusion of the viscera must be followed by the disappearance of constipation and of the resulting intoxication.

I have been twice sent over to England by Professor Metchnikoff in order to investigate from this point of view the patients operated upon by Mr. W. Arbuthnot Lane,[2] but before discussing the results arrived at it is necessary to establish what takes place in the intestine in cases of constipation. Here are briefly the results of my researches.

The composition of the flora of a constipated man is quite peculiar, the following being the chief features: (1) the fæces are dry and somewhat like goats' excrement; (2) the total number of bacteria is less than normal; (3) Gram-negative forms are almost entirely absent; and (4) spores are very abundant.

In view of these observations it was natural to ask what takes place in the intestine in constipation. To answer this query I have carried out the following experiments. Portions of normal fæces were incubated at 37° C. To some of these sterile water was added, whilst others were incubated without addition of water. In the last case the Gram-negative bacteria died off, spores became abundant, and Gram-positive bacteria could be seen here and there. The features of this flora are identical with those of the flora of constipated persons. The same results were observed in the fæces that were kept moist with the addition of water, only they took place more slowly. Thanks to the kindness of Mr. Lane—who furnished me with three cæca—I have been enabled to ascertain that the same conditions obtain in the cæcum.

The bacteria therefore existing in the proximal part of the large intestine are identical with those to be found in the distal part, but in the latter they are far less abundant and more spores are present. Hence I conclude that a process of putrefaction goes on in the intestine of constipated persons which is similar to that which is to be observed *in vitro*. This demonstrates clearly that the phenomena that are going on in the large intestine in constipation are nothing but putrefaction *in vivo*.

The effects of this putrefactive process on the organism are easily understood. Not only is there intoxication by the products of bacterial growth, but the disappearance of the bacteria indicates a process of autolysis, the products of which when absorbed cannot fail to be harmful.

It now remained to ascertain the primary cause of constipation. No better material can be found than that offered me by Mr. Lane.

I shall not deal here with the publication of Lane and Chapple, nor shall I discuss whether the exclusion or excision of the large bowel is admissible from the physiological point of view. I only want to point out that the cases operated on by Mr. Lane and the experiments carried out on dogs by Albu both demonstrate plainly that this operation is possible, and that both men and animals can do without the large bowel.

Before going on with this subject let us consider the fæcal flora of patients without the large intestine. The following results are compiled from a study of 36 cases. In many of these cases the flora has been investigated both before and after the operation. Before the operation the flora of these patients was typical of constipation, as I have briefly described above. After the operation the flora suddenly changed, and those microbes which I have called acetogenes (B. bifidus, B. acetogenes α and β) became predominant, thus resembling the flora present in infants. It is evident, therefore, that the change in the intestinal flora caused by the exclusion of the large bowel is such that, assuming that the ill-effects of constipation are due to bacteria associated with this condition, these effects will be abolished by the operation.

The following conclusions may therefore be drawn: (1) That constipation and the resulting intoxication are caused by the intestinal flora; and (2) that the large intestine is the seat of this process.

It is necessary now to determine how constipation occurs. Doubtless the products of the intestinal bacteria, by increasing secretions inhibiting the submucous plexuses, give rise to stasis. The accumulation of fæces in the colon causes the viscera to fall downward, dragging on the organs which are attached to it. The ileum especially is affected, so that it may be almost occluded, or the ileo-cæcal valve may become inflamed, and thus the passage of fæces be further impeded.[3]

The observations made by Lane extending over a long

[1] These tubes show the same action as our *B. cellulosæ disagregans* in pure culture (Société de Biologie, 1911).

[2] THE LANCET, April 29th, 1911, p. 1130.

[3] THE LANCET, Dec. 2nd, 1911, p. 1540.

period in which he had the opportunity of seeing the organs *n situ*, are conclusive. In his book[4] he describes how the ileum in its junction with the colon becomes kinked, and the passage of fæces through it is impeded. In this way the stasis starting in the colon extends to the small intestine.

These observations made at the operating table were subsequently confirmed *in vivo* by means of the X rays by Gottwald Schwarz,[5] who observed that in constipated subjects the fæcal matters remained in the lower part of the ileum almost eight hours, and that the movements of the large bowel, although increased, are irregular and inconstant in direction, so that the fæces are pushed up and down for some time. This is the cause of the drying up of the fæces in constipation, the intestine exerting an action similar to that of a shaking apparatus.

All these observations confirm the assertion that constipation is due to the intestinal flora which causes the retention of the fæces in the large bowel for a long time. These undergo putrefaction. Hence the production of the soluble poisons on the one hand, and the extraction of the poisons retained by the dead microbes on the other give rise to auto-intoxication. All these phenomena are removed by the removal of the large intestine. Therefore there is no doubt that the seat of constipation is in the large bowel, and that the intoxication occurring in a constipated person is the result of the activity of the microbes of the intestine.

THE ILEO-CÆCAL VALVE.

BY DR. OSCAR KRAUS,
KARLSBAD.

SOME 20 years ago Cantani in Naples and others very strongly advocated the so-called enteroclysis for the treatment of certain intestinal disturbances, some of which had their seat in the small intestine. Bearing in mind the old French denomination of the ileo-cæcal valve as the "barrière des apothicaires," I desired to ascertain positively whether the supposition of olden times, that an enema could not pass that valve, was right, or whether it was possible that, as Cantani asserted, medicated liquids could by a simple enema be introduced into the lower part of the ileum or small intestine. This problem led me to a series of researches,[1] the results of which were confirmed by different anatomists (Toldt, Zuckerkandl, and others).

It cannot be a matter of indifference to the economy of metabolism whether, if I may be permitted the metaphor, the small intestine be closed towards the large intestine by a Chinese wall with an outlet, or whether between the two exists the policy of the open door. It is remarkable that 300 years after the discovery of the ileo-cæcal valve such contradictory suggestions as to its function and action are to be found in literature.

Although the historical part of the question is very interesting and shows how far advanced in detail was the knowledge of the old anatomists, Varolius, Bauhin, Van Tulp, Fallopius, Fabricius d'Aquapendente, and others, I refrain from entering upon too minute a quotation. However, I cannot help quoting a passage from an anatomical lecture by Archangelus Piccolomini, printed in 1586,[2] in which the question of the competency of the valve is so well made out that there is really little to be added. It runs as follows:—

> Valvae tres, quemadmodum in corde, ad cæcum intestinum sunt additae, tanquam ostiola quaedam deorsum spectantes, hunc in finem, ut materiam in intestinis gracilioribus conclusam deorsum illabi sinant, illapsam autem in crassiora impediant, ne sursum resilire possit. Proinde harum valvularum interventu, quicquam in crassioribus intestinis, sive stercus sive putridus flatus exiterit, prohibetur, ne in violentis abdominis compressionibus in tenuiora nobiliorsque intestina possit refundi ad praepediendas nobiliores naturae functiones. Has autem valvas caeco additas observatione deprehendes, si colon inferne impleveris aqua, illudque sublime suspensum teneas, cernes nihil prorsus aquae valvas illas perfluere et in gracilliora intestina subire. *Sed quid de aqua dico?* cum si rectum intestinum *aëre ac flatu*, qui longe aqua est penetrabilior, sufflando impleveris, ne minimum quidem flatus erumpere videbis a colo et caeco in ileum, *tam arcte claudunt valvae illae. Imo, si pugno premas colon, potius aliquid disrumpetur*, quam valvae illae cedant flatus ascensui in gracilliora intestina.[3]

Other literature to similar purport is quoted in my publications before referred to.

The most difficult thing in making these anatomical preparations is to get the material unaltered and without tearing it. Unfortunately, these parts of the bowels are to be obtained only *in the course* of post-mortem examinations, when those who assist the operator are apt to pull upon the intestines and thus destroy the natural conditions. This of course renders them useless, and it cannot be pointed out too strongly that the cæcum and the adjoining part of the ileum must be cut out most carefully immediately after the opening of the abdominal wall, before any other manipulation takes place. After the resection of about 8 inches of the colon (see Fig. 1) this gut is closed by means of a ligature. The ileum is not ligatured. If, then, with a double bulb syringe air is insufflated from the ileum into the colon—that is, in a direction opposite to that in which the insufflation was carried out by Piccolomini—it will be found that this air does not escape in the most diverse degrees of fulness of the gut, even though the ileum be not ligatured. This means that the valve closes quite tightly in a passive way.

After having carefully removed fat and mesenteric elements and looking at the front of such a preparation (Fig. 1), the peculiar disposition of the anterior tænia is striking; it describes an arch with its concavity opening upwards and inwards, corresponding to the inclination of the axis of the cæcum towards the colon. In this part of the gut there are constantly found three haustra which I have called *haustrum cæcale*, *haustrum ileo-colicum*, and *haustrum coli primum*, following the direction from below upwards.

In the intestine represented in Fig. 1 it appears that the *haustrum ileo-colicum* is covered by the two neighbouring haustra to such an extent that only a small triangle of it is visible, the base of which is formed by the tænia, the apex looking towards the ileum. *This configuration is to be seen in all bowels with a competent valve.* Looking at the back of the gut the peculiar direction of the tænia also strikes one. It rises perpendicularly from the region where the ileum enters the cæcum. At this very spot I found a band of longitudinal muscle fibres, from 0·08–0·16 inch in length, diverging from the tænia and forming a small bridge passing behind the ileum and over the two adjacent haustra. I have found this band regularly in all guts examined and have called it *habenula cæci*. Toldt[4] misapprehended its nature. We shall still have to deal with it. By removing fat and blood-vessels from the sulcus under this bridge it is possible to pass a probe under the latter (Fig. 2).

In order to ascertain how a competent valve would appear when seen from the inside I introduced and fastened by a ligature a sort of window in the wall of the gut on the side opposite to the valve so as to be able to inspect it. This method has since proved satisfactory for the purpose of demonstration. (Zuckerkandl in his Topographical Atlas and others have copied it.) Fig. 3 shows the view of such a valve as seen through the above-mentioned window. The ileo-cæcal valve represents, according to its shape, an invagination of the end of the small intestine into that part of the bowels where the large intestine begins a sort of duplication, which bulges into the cavity of the cæcum. Its opening forms a button-hole-like fissure, produced by the apposition of two falciform folds. The upper fold is very long, similar to a real plica sigmoidea. Its ends are called frena Morgagni; the lower one is much the shorter, semicircular,

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[4] The Kink of the Ileum in Chronic Intestinal Stasis.

[5] Zur Physiologie und Pathologie der Dickdarmbewegung, Münchener Medizinische Wochenschrift, 1911.

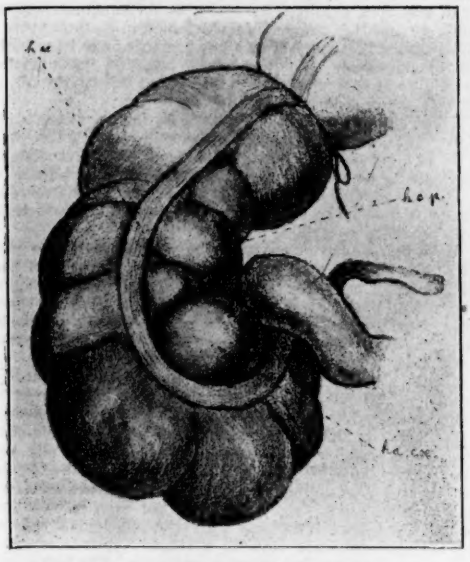
[1] Oscar Kraus: Langenbeck's Archiv, 44, 2; Wiener Klinische Wochenschrift, 1902.

[2] Anatomiae Praelectiones, xi.

[3] Three valves, as is the case in the heart, are appended to the cæcum, like little doors looking downwards, in order that they may allow matter confined in the smaller intestine to pass downwards; but prevent that which has passed into the greater (bowel) from returning upwards. Therefore, by the intervention of these valves whatever, whether fæces or putrid gases, may be in the larger intestine, is prevented from being forced back during violent compression of the abdomen into the smaller intestine to the hindrance of the higher functions of nature. But in order to observe these valves attached to the cæcum, if you fill the colon from below with water and hold it suspended on high, you will see that none of the water flows backwards through the valves. But why do I speak of water? when if you fill the rectal intestine by insufflation with air and flatus, which is far more penetrating than water, not even one jot of flatus will you observe to escape from the colon and cæcum into the ileum, so tightly do those valves close. On the contrary, if you squeeze the colon with your hand something will break, rather than those valves will yield passage for the ascent of flatus into the small intestine.

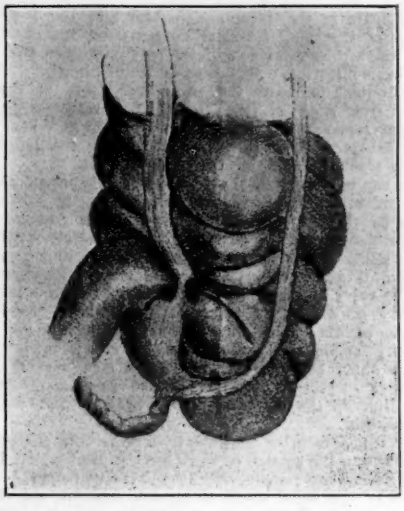
[4] Toldt: Die Formbildung des Menschlichen Blinddarmes und der Valvula Coli. Sitzungsberichte der Kaiserl. Akademie der Wissenschaften, 1894, Band ciii., heft 1.

FIG. 1.



Gut with competent valve seen from the front. HA.CÆ., Haustrum cæcale. H.IC., Haustrum ileo-colicum. H.C.P., Haustrum coli primum.

FIG. 2.

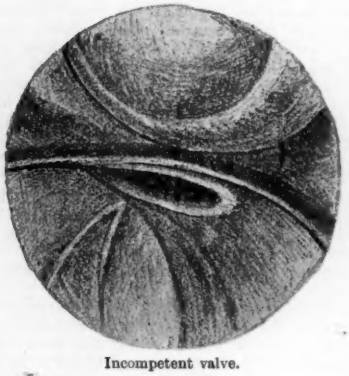


Gut with competent valve seen from behind. A probe under the habenula cæci.

FIG. 3.

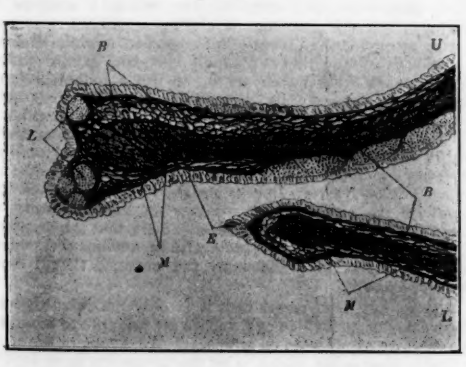
Competent valve seen through a glass window

FIG. 4.



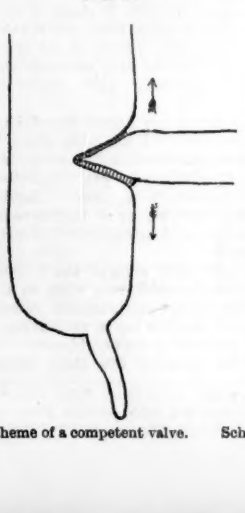
Incompetent valve.

FIG. 5.



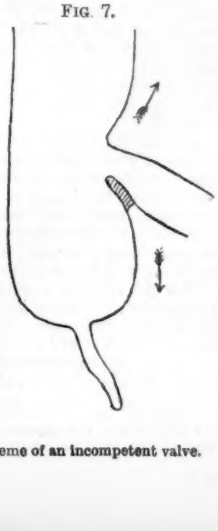
Microscopical section through both lips of the valve. U, Upper lip. L, Lower lip. E, Epithelium. L, Lymphoid follicles. M, Muscle fibres. B, Connective tissue.

FIG. 6.



Scheme of a competent valve.

FIG. 7.



Scheme of an incompetent valve.

but as long as the opening of the valve. According to Luschka, the lips of the valve consist of the mucous membrane and of the circular fibres of the muscularis. Further, according to his statement, the serosa does not participate in the invagination, and also the longitudinal fibres of the small intestine do not enter the substance of the valve, but getting thicker, pass over into the wall of the large intestine. According to Toldt,[6] however, both the longitudinal fibres of the tænia and those of the ileum reach the *edge* of the lip of the valve. My histological researches confirm Toldt's statement. The microscopical preparation clearly shows that the longitudinal fibres reach the edge of the valve (Fig. 5).

As can be seen from the diagram, the ileo-cæcal valve is a real valve, which allows the passing over of the contents towards the large intestine, but prevents passage in the opposite direction. It closes perfectly passively, even in the anatomical preparation—that is to say, without muscular action. It may be compared with Bunsen's indiarubber valve, a "lip-valve," as used in chemical laboratories. It consists merely of a small closed indiarubber tube, forming the outlet of the glass tube through which the gas passes. A very small longitudinal cut or slit is made with a sharp razor into the rubber, which consequently permits the gas to escape. To a recurrent gas stream, however, the lips of the slit will be compressed and will close still tighter.

What occurs if we continue to force air into the gut without heeding the tension of the bowel? That which Piccolomini describes—namely, "ut aliquid disrumpetur." We find that: 1. The colon tends to stretch straight, the curve or bending of the cæcum having partly disappeared, a condition shown by the straighter direction of the anterior tænia. 2. In this forced stretching the shortest, that is the inside, tænia has been ruptured. 3. The haustrum ileo-colicum now lies quite free and is no longer covered by the haustrum cæcale and haustrum coli primum. 4. On the posterior aspect we see that the upper insertion of the habenula has been torn off, the habenula itself having retired downwards. 5. The connective tissue forming the normal adhesions between the anterior part of the upper wall of the invagination between ileum and colon have been torn over an area of the size of a halfpenny. 6. By accurate measurements I have been able to demonstrate that the upper lip had thus been shortened and retracted from the lower one, that the invagination had disappeared at the point in question, and that the valve is no longer competent (Fig. 4). Its lips are gaping, as can be seen through the window inserted in the bowel. *I must especially emphasise that all these, and only these, changes take place regularly*, as often as the insufflation passes a certain limit.

The sketches of Figs. 6 and 7 demonstrate the mechanism whereby the valve closes.

In competent valves the fibres pull with equal force from all sides unto the base of the funnel with a force greater in proportion to the extent to which the bowel was inflated. The adhesions between cæcum and ileum resist this pulling so long as the lips of the valve remain united. If, on the other hand, the valve is torn, the force of the insufflation works (as shown by the arrows in Fig. 7) straight on the upper border of the lip, pulling it away from the lower lip, and the valve is no longer competent. Now, in my opinion, which is also shared by Toldt,[6] it is the very habenula which protects the adhesions between ileum and cæcum from being torn.

Among the bowels examined by me I have found 12 the valves of which were not competent. I am quite aware that the material used in my investigation, some 150 cases, is not very extensive; but it is very difficult to get complete unlacerated guts from the post-mortem room. Anyhow, according to my findings the competency of the valve must be considered a normal condition so long as control investigations fail to prove the contrary.

The bowels with *incompetent* valve showed the following particulars: (1) colon and cæcum were very wide in all of them; (2) the colon was quite straightened (straight anterior tænia); (3) the three haustra lay in apposition, the haustrum ileo-colicum not covered by its neighbours. Very often no sharp limit existed between the three haustra. Thus we find in bowels with insufficient valvulæ coli the same changes as in incompetency artificially produced.

In new-born children the valve is incompetent, and we must surmise that competency is attained in the first years of life. In the post-mortem on a boy 5 years of age I found the valve competent. Whether in the cases of incompetency quoted we have to deal with a persisting infantile condition or with acquired incompetency I cannot say.

These are the anatomical results of my investigations which I may be permitted to sum up in the following conclusions.

1. In a gut removed from the cadaver the valve shuts up gas-tight by passive action. That is the normal condition.

2. It is possible to destroy the competency of the valve by excessive insufflation of the colon. The changes which are thus produced are typical.

Until now we have dealt with the conditions of the valve in a gut *removed from the cadaver*, and we have seen that under merely mechanical conditions the valve is competent and closes gas-tight in a passive manner. But we were only speaking of the way the valve closes. Logically we have now to ask: How does the valve open? Does this occur in a merely passive manner—that is, exclusively by the inner pressure of the contents? Unfortunately, we cannot get an answer to this question except by inspection, for this could only be seen *intra vitam*. Moreover, experiments on animals fail to help us to resolve this question, for in most animals used in experimentation, although they possess more or less distinct thickening of the circular muscle fibres, we fail to find a really competent valve, not only in the highest anthropomorphs, but even in new-born babes. And there is not only a great morphological but also a functional difference between a simple ring-muscle and a complete and competent valvular apparatus. The first stands open and may contract, as the other circular fibres of the gut do, while the intestinal valve of the adult man closes perfectly by passive means. These reinforced circular fibres are to be seen in the guts of dogs, where the rudiment of a valve scarcely projects into the lumen of the bowel. In the intestines of the dog the part corresponding to the human ileum passes directly over into the colon, and the relatively large cæcum forms a special appendage. In murines (mouse, field-mouse), in rabbits and hares, and so on, the condition is similar. In most of these herbivora the cæcum is large; in the hare about ten times as big as the stomach. Although they do not shut there exist sometimes two valves between the cæcum and colon, but none between the small and the large intestine.

It has already been mentioned that *intra vitam* we have to deal not merely with mechanical but with bio-mechanical conditions, in which not only the turgor of the intestinal wall and the tonus of the muscles participate—conditions which must have a still better influence on the tight closing of the valve—but in which the innervation also has to be taken into consideration. V. Zessl has shown that the sphincter vesicæ opens not merely in a passive way, following the pressure of the detrusor, but actively also by irritation of the nervi erigentes, and even after the detrusor has been cut through. V. Frankl-Hochwart and Froehlich succeeded in relaxing the sphincter ani by cortical irritation. Taking these statements into consideration, we may suppose by analogy that this shutting or closing apparatus, also consisting of circular and longitudinal muscles, might be opened by nervous action; that it probably is opened in consequence of the contact with the chyme, or, to use a technical term, reflexly on short circuit, though it generally closes quite mechanically in the same way as the bladder and anus do.

Of course, this refers[5] only to physiological conditions. For it will not do, as Hyrtl has done, to take the vomiting of fæces which occurs in ileus as a proof of the normal competency of the valve. Ileus is certainly not a physiological condition, and any physician who has had the opportunity of observing a case of ileus will surely admit that the organism is struggling against the obstacle with an amount of strength surely sufficient to produce all the changes that I have described above.

But, as has been mentioned, it is only possible to draw these conclusions by analogy, for we are not able to ascertain the facts by experiment on animals. We know, however, of a simple observation which is as demonstrative as an experiment would be. This is the classical case communicated by Nothnagel in 1884, in his well-known contributions to the

[5] Ibid.

[6] Besides that, the mesenteric covering helps, by tight fibres which retain the curve of the cæcum *in situ*, to keep the valve competent.

physiology and pathology of the bowels. In one of his patients ileus had been protracted during nine days. Some hours before death a very small quantity—if I remember correctly 8 oz.—of a coloured NaCl solution had been injected per anum, and it was possible to detect the coloured liquid about 15 inches above Bauhin's valve. This experiment shows quite distinctly that antiperistaltic movement can arise under pathological conditions.

How can we utilise this experiment to solve the question of competency. In a double way. In his case Nothnagel had to deal either with a valve that had been originally incompetent, or with one that had become incompetent in the course of the ileus.

Chance plays a great part in medicine. I remember that when preparing the fresh anatomical specimens for a demonstration before the Society of Internal Medicine in Vienna, as chance would have it, the first valve I came on was incompetent; yet they are by no means frequent as that might seem to suggest. So it is quite possible that Nothnagel's valve also was originally incompetent. But further, Nothnagel relates in a most illustrative way the treatment that had been applied before his arrival—enemas of iced soda-water, Hegar's injection of two quarts of liquid, and so on. Taking into consideration that the whole colon can scarcely take a little over two quarts on an average, we cannot be surprised if the valve was torn by such proceedings, especially by hyper-extension.

I am very sorry that since my first paper appeared this quite harmless, but very illuminating, experiment of Nothnagel has not been repeated. I am sorry that it has not been repeated in invalids without ileus, that it has not been repeated in patients with intestinal fistula, and that the changes as described by me have not been observed. By so doing one would surely have succeeded not only in throwing light on this subject but also in getting indications as to the limits of insufflation that physiological conditions will allow.

Different authors have tried to bring into connexion the function of the ileo-cæcal valve with the movements of the bowels. Anyone who has devoted himself to the study of peristalsis will surely admit that this is a very difficult problem, and I must confess I am not brave enough to get into a scrape unnecessarily; and I do not see any necessity for it, for the closing of the valve has but a very loose connexion with the intestinal movement.

There has been much discussion concerning the purpose and utility of the valve and as to what were the aim and idea of its action. Several authors have asserted that scientifically we are not entitled to claim a special utility for any organ and consequently not for the ileo-cæcal valve. But this view cannot stand a serious discussion. Even Darwinism deals with teleology: the great doctrine of adaptation, mimicry, and other phenomena are nothing else in principle than teleological. But concerning the law of adaptation it is stated that "the function creates the organ." Seeing by phylogenetic as well as by ontogenetic studies that there is a steady transition from the tube with open communication between small and large intestine to the complicated apparatus of an entirely competent valve, we must say that the existence of this organ is entirely due to the fact that its function has been established by degrees and *vice versâ*: if the valve does exist it must consequently have got a function—that is, a purpose. In common language these two words are used for the same thing.

But as far as my opinion goes it will be not the anatomists but the chemists who will tell us what is the purpose of the ileo-cæcal valve. Anyhow, I find, to my thinking, a striking proof of the normal competency of the valve in the intestinal chemism. It is commonly known that of late years a long series of so-called "fistula analyses" has been carried out, and this by most reliable authors, such as Ewald, Nencki, Zakowski, and others. Anyone who has at any time been occupied with anatomical research on the gut knows of the penetrating smell of the products of decomposition of the albuminoids, an odour which will cling to anything, the hands, clothes, or instruments. But none of these authors could find in the small intestine appreciable quantities of these products of decomposition—viz., phenol, scatol, indol, mercaptan, and so on. I can only explain this by the fact that the valve is competent as regards the passage of gas, though only in so far as normal conditions are dealt with, for we know well that in pathological forms of digestion, especially in anomalies of acidity in the stomach and of the secretion of bile, putrefaction (decomposition of albuminoids) can take place in the small intestine. But that has, as stated, nothing to do with normal physiological conditions.

Up to date nothing has been discovered concerning the possibility of opening the intact valve through its innervation. Histological conditions do not permit us to exclude this possibility, but the physiological statements, as made for other sphincter muscles, allow us to assume it as probable. It is not probable that the intact valve can be opened from the large intestine; and the old quotation from Piccolomini still holds good: "Klyster penetrare non potest in graciliora intestina."

A CASE OF

PYÆMIA TREATED WITH SPECIFIC ANTISTREPTOCOCCUS SERUM.

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THIS case appears to me to be worthy of record if only on account of the rarity of pyæmia as a complication of the Lorenz operation for congenital dislocation of the hip.

The patient, a girl aged 2 years 3 months, was admitted to the Hospital for Sick Children, Great Ormond-street, on July 5th, 1911, under the care of Mr. H. A. T. Fairbank, suffering from a congenital dislocation of the right hip. The deformity was very slight. She had commenced to walk at the age of 1 year 6 months. She was a well-nourished, healthy child, without any sign of disease other than the hip deformity.

On July 6th an operation was performed. The patient was anæsthetised with chloroform followed by open ether. The skin having been washed with ether soap and powdered with boric powder the hip was very easily reduced; the adductor muscles were not torn through, and very slight violence was necessary to obtain full abduction. No abrasion or immediate bruising of the skin was caused. On the 8th some bruising in the adductor region appeared, distinctly less than in the average case. Except for slight variation in temperature, which rose to 100° F. on the 14th and to 102° on the 15th, nothing abnormal occurred until the latter date, when œdema and tenderness were apparent over Scarpa's triangle, the œdema involving the right labium majus. A small abscess under the deep fascia in the adductor region was opened and drained, about half an ounce of thin pus being evacuated. The temperature at night was 101°. On cultivation of the pus a pure growth of streptococcus was obtained.

On the evening of July 16th the temperature rose to 104°. The plaster-of-Paris splint having been removed, the abscess was again opened up and found to have tracked down the thigh. Two further incisions were made and very thorough drainage was established. The wall of the abscess was carefully examined and there was no sign of deep extension. The hip-joint itself seemed normal, with no suspicion of fulness or other sign of suppuration. For the next ten days the temperature was about 103° at night and 100° each morning. The patient became extremely toxæmic and rapidly wasted. The wound showed no sign of granulation, and the pus which was discharged was small in amount and contained few leucocytes. On the 26th the left hip-joint filled up with pus and was opened and drained posteriorly. On the 29th the right hip-joint became affected. Both joints were freely opened and drained in front and behind. The patient after the operation was very collapsed, but rallied somewhat after treatment with subcutaneous saline and stimulants. On the 30th a subcutaneous abscess in the left malar region was incised.

On August 2nd suppurative tenosynovitis of a finger developed and the sheath was opened. On the 3rd an acute abscess developed under the left trapezius, tracking under the scapula towards the clavicle. The child was now too ill for general anæsthesia, so after injecting novocaine locally I drained the abscess with three incisions.

From July 21st to August 2nd streptococcus vaccine was administered; at first two doses of a stock polyvalent vaccine, later a specific vaccine which was administered

daily in doses of 250,000 to 1,500,000. I was unable to observe any very definite effect from the vaccine. On July 15th 10 c.c. of a polyvalent antistreptococcus serum was administered; this was repeated on July 19th and August 4th. No beneficial effect was evident.

In counterdraining the abscess on August 3rd I was careless enough to abrade my own finger. Very acute cellulitis supervened, and the finger was incised by Mr. V. Warren Low 18 hours after the accident. After another eight hours, as lymphangitis was spreading and had reached the axilla and my temperature remained at 102°, 1,000,000 of the specific vaccine which I had prepared for the child was administered to me. My temperature immediately became normal, and the infection from this time was quite localised. Captain S. R. Douglas kindly directed my treatment by vaccine and examined the streptococcus obtained from my finger, expressing the opinion that it had the morphological character of streptococcus fæcalis.

Meanwhile the pyæmic child was apparently *in extremis*, there was no attempt at granulation in any of her wounds, and the temperature varied between 100° and 103°. On August 10th, 40 c.c. of blood was withdrawn from my median cephalic vein and allowed to clot, and on the following day 10 c.c. of serum obtained in this way was injected subcutaneously into the child. For three days her temperature was rather higher, never being above 103°, but dropping less in the mornings than it had previously done. After August 14th it gradually fell to normal. The change in her general condition was marked, as was also the improvement in the local condition of her many wounds. All the wounds began to granulate and in just over a fortnight were healed, except for sinuses in connexion with the hip-joints.

On Sept. 9th I removed a small sequestrum from the head of the left femur, and a large sequestrum consisting of the head and neck of the right femur. The sinuses gradually closed and the patient was discharged from hospital on Nov. 16th.

This case possesses several points of interest.

1. The occurrence of pyæmia after the Lorenz operation is very rare. Where suppuration occurs in the hæmatoma produced by the operation, as a rule severe violence has had to be employed in the reduction, abrasions are frequently present, and the children have been generally weakly.

2. On August 11th what amounted to a specific antistreptococcus human serum was injected subcutaneously. The fall of the temperature from this time was gradual, but the child's general condition showed marked improvement within a few days, and the wounds, which so far, over a period of nearly a month, had shown no sign of granulation, began to heal. I know of no record of the previous use of immune human serum in similar circumstances.

3. In the treatment of myself it was possible to use a specific vaccine within eight hours of the incision of my finger, the vaccine being that which I had previously prepared from the child's streptococcus. Eight hours is too short a time for the preparation of a vaccine, and I do not suppose that an acute infection has been treated by a specific vaccine so early.

I desire to express my thanks to Mr. Fairbank for permission to publish these notes.

Kensington-gardens-square, W.

ST. MARK'S HOSPITAL FOR DISEASES OF THE RECTUM, CITY-ROAD, E.C.—The Lord Mayor of London presided at the Mansion House on Feb. 16th at the annual meeting of the supporters of this hospital. Sir Thomas Crosby, in welcoming the audience to the Mansion House, said that his knowledge of the hospital was of very long standing. More than 50 years ago he had the pleasure of knowing the founder, and in the "fifties" he assisted the staff at operations on a number of occasions. The adoption of the annual report was moved by Dr. A. W. Oxford. Sir Homewood Crawford said he thought the time had come when they might justly claim a larger grant from King Edward's Hospital Fund. The Lord Mayor pointed out that the medical officers gave their services gratuitously, and that the warmest thanks were due to them. Mr. F. Swinford Edwards, in returning thanks for himself and his colleagues, said that the aim of the hospital was to supplement the work of the general hospitals. This they did by making a very special study of fistula and its remedies. A vote of thanks to the Lord Mayor terminated the proceedings.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF PERNICIOUS MALARIAL FEVER SIMULATING URÆMIA.

BY B. N. VARMA, L.R.C.P. & S. EDIN., L.F.P.S. GLASG.

THE patient was a married man aged 43 years. The family history showed that his father had had several strokes of paralysis, that his mother had been insane for several years, and that a brother (older) had recently had an attack of hemiplegia. On Nov. 26th, 1911, the patient had had an attack of coryza for which 10 grains of chloride of ammonia, three times a day, had been prescribed offhand. The condition increased in severity, and the temperatures, which was remittent, had reached 101° F. The patient then used indigenous drugs as advised by a "quack," which were of the nature of purgatives. These did him no good. He developed severe diarrhœa which troubled him much. On making inquiry into past illnesses the patient was found to have had several such attacks of continued fever which had yielded to quinine. An examination of the blood at this stage had not exhibited malarial parasites, and the differential count was normal. The condition was accordingly thought to be one of continued malarial fever—the temperature in the morning being 101·6° and in the evening 102·5. Bismuth with chalk and opium were prescribed to stop the diarrhœa, and quinine with chlorine water administered for the malarial fever. The diarrhœa did not subside under the astringent mixture. A fortnight after the onset of the coryza the patient had had epistaxis and had become mentally confused. He grew incoherent in his speech and persistent insomnia set in.

The foregoing facts, coupled with the intractable diarrhœa, led to my examining the patient very thoroughly. Physical examination revealed the following facts. Heart: apex beat in the fifth space in the mammary line; first sound normal, second sound slightly accentuated in the aortic area. Pulse 120, of moderate tension. The sphygmomanometer showed a blood pressure of 130 mm. Lungs normal; no adventitious sounds. The spleen was slightly palpable. The lower margin of the liver just felt below the right costal arch. No œdema. No dropsy. Ophthalmoscopic examination showed no retinal changes. Urine pale and clear, and showing faint traces of albumin; specific gravity 1008; microscopically, hyaline and granular casts.

The case was thought to be one of incipient uræmia on the following grounds: (*a*) A history of alcoholism extending over the last ten years; (*b*) frequency of micturition for the last two or three years, which the patient had mistaken for diabetes, the bladder being voided six or eight times in the day and two or three times in the night; (*c*) intractable diarrhœa; (*d*) epistaxis; (*e*) the urine examination showing traces of albumin, low specific gravity, with granular and hyaline casts; and (*f*) the mental condition of the patient—e.g., incoherence in speech and blank looks and persistent insomnia, &c. One-fifth of a grain of pilocarpine was administered hypodermically at once. The patient had profuse diaphoresis though the pulse got very feeble, signs of collapse intervening for which strychnine with digitalin was given hypodermically and caffein, digitalis, and strychnine in mixture. Two or three hours after the pilocarpine injection the patient got more coherent in his speech and was found to have improved in all respects, but a few hours later he relapsed into his former semi-comatose condition. The pulse being very weak the pilocarpine injection was not repeated. Hot fomentations, hot wet packs, and cupping over the kidneys were applied to eliminate the toxins. These did not bring the patient round. He got much worse; the delirium became of a raving, maniacal type, the pulse became imperceptible, and the heart sounds were barely audible. The feet and hands were cold and the conjunctival reflex was almost lost. Ten grains of veronal sodium were given for the insomnia and delirium. This failing, hyoscine hydrobromid gr. 1/100, and strychnine gr. 1/60 were injected hypodermically. Fifteen minutes after the injection the patient fell into deep sleep; the delirium ceased and the pulse got stronger. Six hours after the injection the patient awoke.

He was now quite coherent in his speech and could recognise faces. He was put on simple diapho-diuretic mixture of sweet spirits of nitre and ammonium acetate solution. The morning temperature was 100° and that of the evening 102·6°, which continued so for a week. A blood examination was again made. Pigment granules were found inside the polymorphonuclear leucocyte, and there was an abnormal increase of mononuclear leucocytes (large), 53 per cent. The patient was put on huge doses of quinine and the fever yielded to it readily. Subsequent examinations of the urine on several occasions showed it to be clear and orange-brown in colour; specific gravity 1025–1020. The blood pressure registered from 120 to 130 mm.

The patient has since made an uninterrupted recovery and is now quite hale and hearty.

Golaganj, Lucknow.

NOTE ON AN UNUSUAL CASE OF INGUINAL HERNIA.

BY H. M. ANDERSON, M.B. EDIN.,
SENIOR ASSISTANT MEDICAL OFFICER, WEST HAM UNION, LEYTONSTONE.

THE following case of an inguinal hernia, which was remarkable both for its size and for the nature of its contents, may prove interesting to readers of THE LANCET.

The patient was a male, aged 86 years, who died in the West Ham Union on Feb. 4th. He had an enormous left-sided inguinal hernia measuring 18 inches from the external ring to the apex, the circumference at the widest part being 36 inches.

At the post-mortem examination the following condition of affairs was found. The circumference of the neck of the sac was 11 inches. Through it had passed the greater part of the intestinal tract. The stomach measured 16½ inches from fundus to antrum pylori. Its lower half was herniated, a very marked constriction being produced by the external ring. The upper intra-abdominal portion was enormously distended and occupied the whole of the left half of the abdominal cavity. The first part of the duodenum, together with that portion of the second part proximal to the opening of the common bile-duct, was elongated, measuring 8 inches in length. The lower or proximal half of this part of the gut was in the sac; the upper or distal part extended intra-abdominally and vertically as far as the projection of the umbilicus on the posterior abdominal wall. At this level it was acutely flexed upon the lower half of the second part of the duodenum, the convexity of the flexure receiving the common bile-duct. From this flexure the gut returned to the sac. The remainder of the small intestine and the whole of the large, with the exception of a small portion of the sigmoid colon and the rectum, occupied the hernial sac. The cæcum was placed inferiorly and laterally, whilst the descending colon and splenic flexure were closely adherent to the medial wall and apex of the sac. There was a compensatory descent of the diaphragm and consequently of the liver, the lower border of the right lobe of this organ being slightly below the intercristal plane. The bladder occupied the right iliac fossa, its usual mesial position being usurped by the intra-abdominal portion of the sigmoid colon. A great increase of fat in the omenta and mesenteries and the binding together of the contents of the abdomen and sac by dense fibrous adhesions complicated the examination considerably. The testicle, very small, flattened, and atrophied, with an enlongated cord, was situate medially at a point midway between the pubis and the apex of the sac.

According to his wife's statement, the patient had had a hernia for over 50 years, the size having remained *in statu quo* for 12 years or more. For five years previously to his death the patient was bedridden. Prior to this he had been able to get about, although with some difficulty.

The capacity of the sac is unusual. It equalled, if not exceeded, that of the abdomen proper. Worthy of notice are, first, the extent to which the normal arrangement of the abdominal organs had been altered; and secondly, the maintenance of practically normal physiological functions under such circumstances. Apart from occasional attacks of vomiting and the necessity of fairly frequent use of laxatives, a very fair state of health obtained until the last.

I wish to express my indebtedness to Dr. J. Sangster Greig for permission to communicate these notes.

Leytonstone.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SURGICAL SECTION, WITH SECTIONS OF MEDICINE AND ANÆSTHETICS.

Exophthalmic Goitre.

A JOINT meeting of these sections was held on Feb. 13th, Mr. CLINTON T. DENT, the President of the Surgical Section, being in the chair.

Before the business of the meeting was proceeded with the PRESIDENT referred in suitable terms to the death of Lord Lister. The following resolution, proposed by the President and seconded by Sir ANTHONY BOWLBY, was unanimously passed by the Fellows and members standing:—

The Fellows of the Surgical Section of the Royal Society of Medicine desire to express the deep regret with which they learnt of Lord Lister's death, and to place on record their profound sense of the incalculable benefits that his life-work has conferred, not less on other branches of medical science than on surgery, and on humanity generally. They desire to convey to the members of his family their sympathy in their great loss—a loss that will be universally felt throughout the civilised world.

Dr. T. P. DUNHILL, of Melbourne, communicated a paper entitled "Partial Thyroidectomy under Local Anæsthesia, with Special Reference to Exophthalmic Goitre," which is published in full in the last issue of THE LANCET, p. 422.

Sir VICTOR HORSLEY said that he could add little to what he had contributed to the discussion at a meeting of the Hunterian Society held last year. As regards the pathology of Graves's disease, he did not entirely agree with Dr. Dunhill's classification into four classes of cases. He (Sir Victor Horsley) recognised three forms: (1) true exophthalmic goitre with watery secretion; (2) parenchymatous goitre with exophthalmic symptoms; (3) an extremely rare form in which the gland was wholly diseased, and in which he advised total removal and grafting of normal gland beneath the peritoneum. He agreed with Dr. Dunhill's view that the danger of operation was *nil;* that was his (Sir Victor Horsley's) own experience. He had had one death only, and that many years ago. It was true, however, that he had refused to operate upon three cases, and so possibly avoided a higher mortality. The high death-rates published must depend upon an incorrect estimation of the condition before operation. It was only fatal in *dernier ressort* cases. With regard to the method of operation, he had given up that by ligature of the arteries and did not consider that it cured like removal of the lateral lobe and isthmus. It was true that certain symptoms persisted afterwards, such as hurried heart action on exertion and a degree of exophthalmos, but the patients returned to work, and that was the test of surgical treatment. All his cases had been subjected for many months to medical treatment. He thought three months was long enough to wait before resorting to surgical measures. No medical treatment would cure parenchymatous goitre with exophthalmic symptoms in an adult. True exophthalmic goitre, however, often got well with faradism and rest-cure treatment. With regard to the means of producing anæsthesia, he had operated upon severe cases and always under general anæsthesia, and had seen no reason to depart from that method. He considered that the method of anæsthesia had no bearing on the prognosis. He admitted that too often an excess of anæsthetic was given. He had seen no deaths from the general anæsthetic and did not think that it should be held responsible for deaths in these cases.

Dr. GEORGE R. MURRAY (Manchester) then read a paper on the Principles of Treatment in Exophthalmic Goitre, which will be found on p. 489 of this issue of THE LANCET.

Mr. C. A. LEEDHAM-GREEN (Birmingham) said that we were at a grave disadvantage as regards operative treatment of exophthalmic goitre in England. The value of the operation had not been appreciated properly and consequently few cases were referred to the surgeon, and even these were of the severest type. It was not easy to state the mortality of the operation, for there was still great difference of opinion as to the indications for operating and as to what cases should be classed as exophthalmic goitre. At the German Surgical Congress last Easter six surgeons quoted

their mortality, which varied between 3 and 17·3 per cent., or taking the total 883 cases gave an average mortality of a little over 5 per cent. The average of many hundreds of published cases treated by conservative measures came out at about 15 per cent. The immediate result from operation was generally strikingly good. It was a difficult question to answer whether the results were permanent, for the operation had only been done systematically during the last decade, and was much more thorough now than a few years ago. Parré out of 65 cases owned to 10 or 15 per cent. failures. Von Eiselsberg, of 71 cases, reported 23 completely healed, 8 improved, 2 unrelieved. Küttner collected 85 cases; 21 were treated conservatively, 5 of these died; of the remaining 16, 9 could be traced. None were cured and only one felt better. Of the 63 operated upon, 11 died. Of the remaining 52, 37 were traced and 31 examined. Of these 33·2 per cent. were cured, 36 per cent. markedly improved and at work, 16·6 per cent. able to work, but still showed definite signs. In 13·8 per cent. no permanent benefit accrued. Of Mr. Leedham-Green's own cases operated upon, 30 in number, 3 had died: 1 from pneumonia, 1 from heart failure, and 1 some weeks later from phthisis. Of the remainder all derived definite benefit from the operation; 2 had relapsed, due to hypertrophy of the remaining lobe All the others were at work. If the operation was to have a reasonable chance of curing the patient, it must be resorted to before the vascular and nervous systems were shattered by the prolonged ill-effects of the morbid thyroid secretion. As soon as the effects of rest and medicinal treatment proved unavailing, valuable time should not be wasted before resection was considered. He had obtained the best results where he had removed most. He thought that the risk of ligation of vessels was proportionately greater than the benefit derived from it. He considered the question of the method of anæsthesia an important one, and preferred local anæsthesia preceded by a small dose of scopolamine and morphia.

Mr. J. LYNN THOMAS (Cardiff) agreed with Sir Victor Horsley that the method of anæsthesia was a very small factor in the success of the operation. He himself had had 4 deaths, among which 1 occurred after the use of novocaine, 1 was due to emotional disturbance, and 1 to pneumonia after ether inhalation, so that the kind of anæsthesia played very little part. He regarded emotional disturbance as a very important factor, and it was consequently important to keep a close eye on the patients after operation.

Dr. W. HALE WHITE said that he had investigated more than 200 cases which had been treated either at Guy's Hospital or in private practice between the years 1888 and 1909. He excluded those operated upon first. Of the remainder, he had been able to trace 49 hospital cases and 53 private ones. He had submitted his figures to Mr. Thiselton, who had kindly given him an actuarial report. The "expected deaths" among women of the ages implicated during that time were 5; the actual deaths were 8. Taking only those between the ages of 30 and 45, and excluding the few cases which occurred before and after those ages, "expected deaths" came out at 3 and actual deaths at 5. Counting in the private cases also, it appeared that 15 actually died, whilst 8 could be counted as "expected deaths," so that the mortality of exophthalmic goitre was apparently twice that of people in general. It must be remembered also that all were either ill enough to go to the hospital or seek a second opinion. The figures did not include those dying in the hospital, who were, of course, unsuitable for operative treatment. On 18 patients who died in hospital and who were not operated upon, 11 had fatal diarrhœa and vomiting, 6 became delirious, and 1 comatose. Two had melancholia and 1 mania. In 1 case mitral disease was present, and in 1 endocarditis and pericarditis were present. Two had rheumatic fever. Two had pneumonia and 1 bronchopneumonia. One died from diabetic coma. Of the 7 private patients who died (apart from operation), 1 succumbed to phthisis, 1 to pleural effusion, 1 to heart disease, 1 to alcoholism, 1 to diarrhœa, and 2 to diabetes. Forty cases could be traced of patients who had not been operated upon, and did not die in the hospital; 26 did very well, 12 did moderately well or were better, and 2 were no better. Of 47 seen in private practice who neither died nor were operated upon, 35 did well, 9 moderately well, and 3 not well. In all, 87 cases came under this category, of whom 61 did very well, 21 moderately well, and 5 were no better. Of 11 who had been operated upon, 4 died as the result. Only one reported herself as feeling perfectly well; the others were much better, but not cured. Actual deaths among sufferers from exophthalmic goitre, ill enough to go into hospital or seek a second opinion, were 15 as against 8 expected among healthy females, although these patients afflicted with exopthalmic goitre included severe and very severe cases. As, on the other hand, cases selected for operation were usually mild, and a few died as an immediate result, it hardly seemed likely that operations on the thyroid could diminish greatly the deaths that might, if the patients were not operated upon, be expected among such sufferers from exophthalmic goitre as would be selected for operation. If the operation became at all common it would be because it got the patients well more quickly and more perfectly.

The discussion was then adjourned.

MEDICAL SOCIETY OF LONDON.

Intrinsic Cancer of the Larynx Treated by Laryngo-fissure.—Aching Throat.

A MEETING of this society was held on Feb. 12th, Dr. J. MITCHELL BRUCE, the President, being in the chair.

Before proceeding to the business of the meeting the PRESIDENT referred in sympathetic terms to the great loss that the Society had sustained in the last few days in the death of their greatly respected Fellows, the late Lord Lister and Sir William Allchin. A vote of condolence with their nearest relatives was passed by the Fellows standing.

Dr. STCLAIR THOMSON read a paper on Intrinsic Cancer of the Larynx treated by Laryngo-fissure, with 80 per cent. of lasting cures. He considered that cases of cancer of the larynx might be divided into two groups—intrinsic and extrinsic. This classification was of the greatest importance, for whilst extrinsic cancer was, according to Butlin, "a dire disease," it was quite otherwise with intrinsic cancer: there was probably no other region of the body where operation for cancer could show anything like the satisfactory results that could be obtained when the disease occurred in the interior of the larynx and was removed by laryngo-fissure. There were two principal reasons why statistics and reports were not more frequently forthcoming: (1) Many cases did not consult a laryngologist for a persistent hoarseness until too advanced for a successful operation, and (2) cancer of the larynx was not a common disease. Ten cases had been operated on between the years 1900 and 1910, a period of ten years. The duration of the cure in each case from the date of operation to February, 1912, had been as follows: 1 case, 7½ years; 1 case, 4 years 4 months; 1 case, 3 years; 1 case, 2 years 2 months since laryngectomy; 1 case, 2 years 1 month; 2 cases, 1 year 3 months. One case died from other causes 15 months after operation, 1 case died from cancer of the tongue on the opposite side three years after operation and without local recurrence, and 1 case died from local recurrence. The conclusions to be drawn from this record could be stated fairly briefly. All the patients were male. Their ages varied between 43 and 68. Five, or 50 per cent., were under 50, 4 were between 50 and 60, and 1 was nearly 70. In no case did thyrotomy reveal any error of diagnosis. The death-rate from the operation was *nil*. Only 1 case was dead from local recurrence. A second case died from separate development of cancer in another part of the body. A third patient was dead from another cause. Laryngo-fissure alone had yielded a lasting cure in 80 per cent. of cases. Laryngo-fissure, supplemented by excision of the larynx in a case of local recurrence, had preserved 90 per cent. of the patients. In the only two cases in which there was local recurrence the disease reappeared within the year following the operation of laryngo-fissure. This fully confirmed Sir Felix Semon's conclusion that there was little or no anxiety as to return of intrinsic cancer if the larynx remained free for 12 months. Some points of diagnosis—mobility of the affected cord and preliminary microscopic examination of removed portion—were then referred to, and the paper concluded with some consideration of anæsthesia and surgical technique.

Sir FELIX SEMON said he was glad that Dr. StClair Thomson's experience bore out the points which he (Sir Felix Semon) had emphasised in his paper five years ago. At one time the operation of laryngo-fissure had fallen into disrepute and for ten years no one attempted it, but it was the late Sir Henry Butlin who had restored it to its proper position. He thought that there was some improvement in recent years in the stage at which patients were sent by practitioners, but there was still room for further improvement, not only in England, but all the world over. After long-continued hoarseness patients should be sent for efficient examination by a specialist. He thought that many of the so-called recurrences were not really recurrences, speaking scientifically, because they did not occur either at the site of the original growth or in lymphatic connexion with it. Occasionally, too, the second growth was of quite a different kind. He still held to the statement that if recurrence did not occur within one year the patient would probably remain free. He emphasised the importance of occlusion of the lower air-passages during the operation.

Mr. P. R. W. DE SANTI said that he had operated upon eight cases for intrinsic cancer of the larynx within 12 years. Seven were men. One was wrongly diagnosed as sarcoma, and proved to be a benign papillary growth. One had recurred 14 months later in the glands. The longest period of immunity after the operation was 11 years. As the result of experimental injections to show the distribution of the lymphatics, he still held that the division into extrinsic and intrinsic growths was the most satisfactory. All the seven cases recovered.

Mr. E. B. WAGGETT said that epithelioma of the larynx was a disease of extremely low malignancy, and consequently was especially suitable for operative treatment—facts which were imperfectly recognised by the profession generally. In order to obtain such cases early enough, it should be insisted upon that all practitioners should be able to see the inside of a larynx during life before they passed their final examinations.

Mr. HERBERT TILLEY recorded a case in which the operation had been successful for 13 years. Then the patient died, and a hard button-like epithelioma was found post mortem. Another case illustrated the slight degree of malignancy, since symptoms were present for five years before the diagnosis was confirmed, and operative treatment was deemed necessary. He did not think that bleeding after the operation was due to adrenalin having been used, but rather to the degenerate state of the arteries in elderly patients.

Dr. G. WILLIAM HILL said that, in his opinion, primary extrinsic cancer of the larynx did not exist. He thought that the cases described that evening were not so much characteristic of intrinsic cancer of the larynx as of cancer of a small area of the larynx, "the vocal cord area." These were peculiarly operable. What he had called "party-wall" cancer was not so suitable for laryngo-fissure, as it soon spread and became extrinsic.

Dr. W. H. KELSON read a paper on "Aching Throat." He pointed out that although not serious to life aching throat was important, because very common, very depressing, and very persistent. The patients were mostly middle-aged, and might belong to either sex. They might show the various signs of chronic pharyngitis and other local pathological conditions, but these might be entirely absent and the throat appear normal. Anæmia, gout, or rheumatism might be present, but the treatment of these alone seldom cured the aching. Most commonly the patient suffered from flatulent dyspepsia with constipation. The nerve-supply was exceedingly rich and varied, but, on the other hand, the sense of locality in the pharynx was very vague, consequently pain was often referred to parts in this region other than those actually stimulated. Neurotic conditions and over-use of the voice would not explain the majority of cases of "aching throat." A number of cases were then referred to, including two in which the cause had been salivary calculus. Since dyspepsia was by far the most common associate of aching throat, this must especially be treated, the assistance of a dentist was very often necessary, and the question of diet must be carefully gone into. Cleansing washes and gargles might be used for the throat and nose, but operative treatment had better be avoided in the first instance. The aching might be due to toxins, or perhaps be a referred pain from the stomach.

OPHTHALMOLOGICAL SOCIETY.

Exhibition of Cases.

A CLINICAL meeting of this society was held on Feb. 8th, Mr. J. B. LAWFORD, the President, being in the chair.

Mr. ROBERT W. DOYNE showed a case of Guttate Iritis. He said that he had never seen a case in a man. The guttæ were independent, in position, of the inflammatory points. The guttæ within a few days might have completely changed their position. In this patient a week ago there were four well-marked guttæ, but now there was only one. It seemed to be an exudation between the layers of epithelium where it was reflected; usually the subjects of the condition were gouty.—The PRESIDENT reminded the members of the cases shown by Mr. Doyne two years ago, and they seemed to have occurred only in cases of chronic iritis. If the condition happened in acute iritis it might be missed in the general haze.

Mr. CHARLES WRAY showed three cases of Frontal Sinus Disease, with pathological specimens; also a severe case of Ingrowing Lashes treated by the electro-cautery. He said that although Siegler advocated that for entropion the cautery should be at a white heat, his own experience was that it was better at a dull red heat, and he preferred the thermo-cautery.

Mr. WRAY also showed a Cyclo-photometer and described his method of testing.—The matter was discussed by Mr. C. A. WORTH, who referred to a book he published ten years ago on the subject.

Mr. G. COATS exhibited a case of Unilateral Proliferation of the Uveal Pigment, and Mr. E. TREACHER COLLINS one of Unilateral Melanosis of the Uvea and Sclera, with elevations on the affected eye. These were discussed together. Mr. Coats said there was evidence that the spot was there shortly after birth, and it had increased considerably in the last year. There was increased pigmentation of iris, fundus, and sclera. The point of most interest was the presence of elevations on the surface of the iris. Twenty-six cases of the kind had been recorded, and of those no fewer than seven developed sarcomata in the eye late in life. The commonest age for it to occur was between 50 and 60, and the age of the youngest case recorded was 34. Mr. Treacher Collins said he had his case under observation and care, backwards and forwards, for ten years. Not every case of melanosis showed elevations on the iris. Some years ago he showed, at the society, sections at the seat of melanosis, apparently dating from birth, in a man aged 60. He thought it was melanotic sarcoma of the ciliary body. He recently re-examined that section and found it remarkably free from elevations.—Mr. F. HEWKLEY raised the question whether it was the rule for the irides to be a light grey colour at birth.

Mr. LESLIE J. PATON showed a case of Holes in the Macula, which he considered differed from ordinary cases of the kind and from the 15 cases collected in Mr. F. M. Ogilvie's paper in the fact that the hole had a bluish-white background. There was no history of injury in the case, yet there was some evidence that it was a recent occurrence. There had evidently been considerable retinal disturbance all round the macular region. Apart from the holes, the general appearance was like that of albuminuric retinitis, but there was no trace of albumin in the urine and no other organic disease.

Mr. R. A. GREEVES showed again a patient with Recurrent Unpigmented Tumour of the Sclera, the case having been brought forward originally in October last. Removal was done, and later there seemed to be a recurrence, but the scar tissue which began to form seemed to strangle the tumour, and it had now disappeared. The first tumour was pronounced to be a very cellular hæmangioma.

Mr. J. F. CUNNINGHAM showed two cases: (1) Cholesterine Crystals in the Anterior Chamber; (2) Retinal Hæmorrhage and Exudation in a young subject. The second case he regarded as one of vascular disease.—The PRESIDENT, discussing Mr. Cunningham's second case, said he saw the lad in hospital and no condition had been found which was likely to be causally related to the eye condition; nothing, for instance, in the blood-cell count, or the coagulation time, or the presence of any bacterial condition. The possibility of lead-poisoning had also been excluded.—Mr. DOYNE considered that the case belonged to the class which Mr. H. Eales

had worked at, and which he called spontaneous hæmorrhages, but which had not had much light thrown on them. He tried to find out something about the condition years ago, and was convinced that the veins, not the arteries, were responsible for the hæmorrhage. The cases seemed to be limited to men, but not to young men, as Mr. Eales thought. The whole eyeball might appear to be suddenly filled with blood. The cases which he had seen recovered, sometimes with very good vision, leaving some silvery stains in the retina, and sometimes some membrane in the vitreous. In one case he found that the blood tension was very low. The von Pirquet test was positive.—Dr. T. HARRISON BUTLER said Professor Axenfeldt had proved several of these diseases to be due to alterations in the retinal vessels, and he pointed out that nearly all the cases had a tubercular basis.—Mr. PATON did not agree that these cases were analogous to cases of intravitreous hæmorrhage. One case he saw had some cranial nerve palsy.—Dr. E. FARQUHAR BUZZARD said he knew the case to which Mr. Paton alluded. It was not a case of true Bell's palsy, because only certain fibres of the facial nerve were affected. He thought it might have been due to a local hæmorrhage in the facial nucleus or the facial nerve. One could easily imagine, following on Mr. Doyne's suggestion, that it might be caused by a small tubercle in the pons.—Mr. CYRIL H. WALKER referred to the case of a man, aged 21, who was healthy, but the sight of one eye was bad. He had many streaky-looking hæmorrhages in the nerve fibre layer—there were ten fairly large ones, the largest a quarter the size of the disc, and there were 20 smaller ones. In three weeks the sight improved a great deal. There was no macular star. Two months later the patient had a very large intra-ocular hæmorrhage which blotted out everything. That remained opaque until two months later, when it began to get translucent. The treatment was mainly rest, and the patient was also given some mercury.—Mr. D. LEIGHTON DAVIES related the case of a male clerk, aged 19, who came complaining of severe headaches, and that a few days previously he was blind in his left eye. In the fundus striate hæmorrhages were found over the retina, and dilatation of the vein with white exudation in the macular region. It looked like a case of albuminuric retinitis, but a physician found the urine normal.—Mr. W. H. H. JESSOP considered such cases were somewhat allied to Raynaud's disease or even hæmophilia; the subjects of it, when struck, rapidly became bruised. There seemed to be some defect in the coat of the arteries leading rapidly to transudation.—The discussion was continued by Mr. RAYNER BATTEN and the PRESIDENT.

Mr. A. H. P. DAWNAY showed a case of Persistence of Anterior Portion of Hyaloid Artery.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases.—Tuberculous Peritonitis in Adults.—Ortho-Roentgenography of the Heart and Aorta.

A MEETING of this society was held on Feb. 7th, Mr. J. M. COTTERILL, the President, being in the chair.

Mr. CHARLES W. CATHCART showed: 1. A female patient after Removal of a Calculus from low down in the ureter. The woman had been subject to frequent attacks of severe renal colic during the last two years. A renal calculus had been removed from her in another hospital some months previously. Her attacks, however, continued as before and she was sent to Mr. Cathcart. An X ray photograph showed a stone lying low down in the left ureter. This ureter was exposed by an extra-peritoneal operation, the ureter opened above the brim of the pelvis, and the stone removed with a loop of copper wire mounted on a handle. 2. A patient after Wiring of the Humerus; Musculo-spiral Paralysis following. Paralysis of motion was observed shortly after the accident, but sensation remained nearly complete. At the operation the musculo-spiral nerve was found to be stretched over the upper fragment, which was displaced backwards and was involved in callus. The bones were replaced and wired; the nerve was freed, and recovery was steadily advancing.

Dr. G. L. GULLAND showed: 1. A case of Myxœdema occurring in a woman aged 44. She had complained of swelling of the face, neck, and eyes during the past three years with weakness, loss of appetite, and breathlessness. Her temperature was subnormal, the face swollen, and the features coarse. Her skin all over was dry and thick, not pitting on pressure. The right lobe of the thyroid was enlarged; nothing was to be noted in the blood or urine. Mitral stenosis was present, and the case was as yet untreated. 2. A case of Tabes Dorsalis. The patient was aged 83. There was a history of spinal disease, dating 17 years, and treated by stretching. There was no history of syphilis; Argyll Robertson pupil and Romberg's sign were present, also general muscular weakness with absence of the deep reflexes; incoördination was marked with indefinite impairment of common sensations. Lymphocytosis was present in the cerebro-spinal fluid, and Wassermann's reaction was negative. Partial paresis of both third nerves was present with hemiatrophy of the tongue.

Professor F. M. CAIRD showed a case of Entero-vesical Fistula in a man aged 51. He discussed the causes, the advantages of cystoscopy, and laparotomy. He described the separation of the carcinoma of the sigmoid from the base of the bladder, and how enterectomy had to be performed for removal of the carcinoma; how the bladder wound was closed, end-to-end union of the intestine was accomplished, and finally appendicostomy was performed.

Professor CAIRD read a paper on the Treatment of Tuberculous Peritonitis in Adults by Operation. In every instance definite evidence of the lesion was ascertained, and only those cases were considered in which peritoneal invasion was the chief manifestation of the disease. Consequently, early examples of tuberculous appendicitis, tuberculous stricture of the intestine, and tabes mesenterica were excluded. On the other hand, tuberculous disease of the Fallopian tubes and ovaries, with marked extension to the peritoneum, and also cases of general adhesive tuberculous peritonitis with infiltration of the serosa and other coats of the bowel were included. For convenience a common classification was adopted, consisting of a series of types running into each other, but which might be placed under the headings of: (1) Cases with fluid exudate predominating; (2) the same plus adhesions and matting, with the exudate sometimes encysted; (3) dry forms with or without adhesions; (4) dry adhesive forms in which the peritoneal cavity was practically obliterated, and in which there might also be an extension to the intestinal wall from the serous surface inwards. The general symptoms presented by the disease were fairly uniform and well recognised. They were best marked in the exudative varieties. The patient complained of a progressive, sometimes slightly intermitting, swelling of the abdomen. There were abdominal discomfort and pain, loss of strength and weight, and constipation was usually present. As the distension increased nausea and vomiting arose, the urine became scanty, and there was frequency of micturition. If there were in addition marked adhesions and infiltrations of the omentum, localised resistant areas and tenderness might be discovered and the general abdominal doughy feeling so often present was familiar. The dry varieties were still more likely to be associated with localised tenderness and resistance; diarrhœa suggested implications and kinking of the intestine. As a rule there was but little rise in the temperature; the pulse-rate was apt to increase with the abdominal distension as also the respiration. The antecedent history was helpful in confirming a diagnosis, and the patient might have enlarged cervical and axillary glands, a tuberculous apex, or may retain the memory of an old pleurisy. Moreover, similar histories of tubercle occurring in the immediate relatives might be elicited. Definite evidence on this point was only positive in 11 out of 31 cases. It was a curious fact that trauma had not been recognised as a factor in causing tuberculous peritonitis, and only two of the cases stated that they had a previous abdominal strain. In two women the condition followed closely on their last confinement. It was interesting to note that in three cases, after excellent recoveries from operations for ruptured gastric ulcer, for duodenal ulcer, and for gastic carcinoma, the three patients returned with tuberculous peritonitis. In no case during the previous laparotomies had there been any indication of tubercle observed. As regards sex there were 13 males and 18 females. The males were from 17 to 60 years of age, averaging 32; the females from 13 to 51, averaging 22 years. In but few cases did the diagnosis present any difficulty, although it must be admitted that of the older patients some were subjected to operations with a possible diagnosis of

malignant peritonitis, and it is still more instructive that the conditions found on incision so closely simulated that disease in every detail that only the microscopic examination of removed portions of diseased peritoneum and tissue removed, as also the after-history, demonstrated the true nature of the pathological process. Most of the patients were referred to the surgical ward after having undergone treatment by the physicians on the medical side. The surgical treatment consisted in an incision midway between the umbilicus and the symphysis pubis, and occasionally in the linea semilunaris or ileo-cæcal region, according as circumstances seemed to demand. On opening the peritoneal cavity an attempt was made to discover and remove any abdominal focus. This was seldom successful, since no prolonged search seemed advisable, and only on two occasions was it thought right to remove tuberculous tubes and ovaries. In two others masses of infiltrated omentum were excised. In such cases, and also where the exudate was purulent, a drainage-tube was employed for a short period, and the peritoneum was gently douched with warm sterile salt water. In the majority of cases, after freeing adhesions and evacuating the fluid, the abdomen was at once closed. The dry and adhesive type of tubercle required great care in manipulation, more especially in dividing the thickened peritoneum, which was often almost inseparably blended with the subjacent coil of bowel. In one patient, despite special vigilance, the bladder was accidentally opened; it lay 1½ inches above the pubes and was fused with the parietal peritoneum. In two other cases the separation of adhesions gave rise to laceration of infiltrated small intestine, and a double enterectomy became necessary. Two cases of fæcal fistulas followed simple exploration in purulent cases; one healed, the other ultimately succumbed. The immediate results of operation were that of 31 cases 27 recovered. Of 13 males, 2 died; and of 18 females, 1 died after operation. Of the males, one was an emaciated youth, aged 18, who had suffered for 18 months with abdominal swelling, pain, tenderness, vomiting, and diarrhœa. He had a large hour-glass abscess of the abdomen and pouch of Douglas, which also contained gas and fæces. After drainage and enterectomies he at length sank, four months later, from general tuberculosis. The other one died within 16 days from a general tuberculous peritonitis, with marked additional tubercle of the lungs, liver, and spleen. The female, who was aged 17, sank 19 days after operation from general tuberculous lymphadenitis and tuberculous peritonitis. All of the dry varieties healed, although such cases are not regarded so favourably from a surgical standpoint as those which abound in fluid. All of the patients with two exceptions reaped direct benefit from operation. Two showed no improvement and eventually died. Whatever temporary good may follow operation it is mainly by the ultimate gain that the value of surgical intervention must be gauged. It is unfortunately no easy matter to supply this. Not only is it difficult to trace cases, but should the patient have died since leaving hospital definite information as to the cause of death is rarely forthcoming. Of the 27 recoveries 10 cannot be traced. Nine died at varying periods. Eight are known to be alive and well: one 9 years, four 5 years, one 4 years, one 3 years, and one 2 years after operation. If such results are not brilliant they at least justify surgical treatment. The general condition of patients suffering from tuberculous peritonitis is always bad; their nutrition, their resistive powers are very low. None of the cases were selected; they were all in poor condition and, as already stated, the greater number had ceased to respond to the aid of the physician, and it is only after a fair trial of medical measures that the question of operation should be entertained. The curative effect of laparotomy has been ascribed to various factors—the removal of a passive injurious effusion, thus relieving the general tension, the favouring influence of the succeeding hyperæmia of the peritoneum which ensues, and the preparing of active antibacterial fluid all play their part. Bumm has found on following a first laparotomy by a second that the tubercles on the second occasion were invaded by lymphoid cells and deprived of their bacilli. Only one of the series had been treated with tuberculin as far as was known. It would probably be a wise thing to make use of this adjuvant both before and after operation in all such cases.—A long and animated discussion took place at the conclusion of the paper.

Dr. W. HOPE FOWLER and Dr. W. T. RITCHIE read a paper on Ortho-Roentgenography of the Heart and Aorta (with lantern demonstration). The technique of the method having been described, the normal cardiac outline was discussed. There are two curves of the right side, and either three or four on the left. The variations of these curves in health, their form and pulsations, were indicated. The respiratory movements of the heart are more extensive than the pulsatile, and the form of the cardiac silhouette differs according to the phase of respiration at which the record is taken. The records were measured according to Groedel's method, measurements being also taken from the patient's right fist as standards, according to Levy-Dorn and Möller, for the size of the normal heart. Pathological conditions affecting the heart are more readily characterised by alteration of the cardiac silhouette than by variation in size alone. In well-marked cases of mitral incompetence the two lower curves on the left side are prominent. In mitral stenosis, with the auricular musculature contracting in a coördinate manner, the heart is rather vertical, the outline curves are sharply demarcated from each other, the left auricular and pulmonary curves are especially prominent, while that of the left ventricle may be diminished. Mitral stenosis, with auricular fibrillation, is characterised by a large, globular heart, with bulging of the pulmonary and both auricular curves. In aortic incompetence the "recumbent egg-form" is not constant, although the curve of the left ventricle is enlarged. Combined aortic and mitral incompetence presents a larger and more dilated heart. Illustrations were also shown of orthodiagraphic outlines from cases of mediastino-pericarditis, patent ventricular septum, patent ductus arteriosus, chronic interstitial nephritis, and aortic aneurysms. The orthodiagraphic and percussion outlines of various hearts were compared with one another, and it was shown that the left border of the heart and the upper limit of the liver, as ascertained by firm percussion, frequently lie too far to the left and too high respectively, while the right percussion border may be too near the mesial line. Owing to the oblique position of the heart within the thorax the basal portions of the heart offer special difficulty to accurate delimitation by means of percussion. The position, size, and form of the heart cannot be delimited so accurately by percussion as by the orthodiagraph.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 2nd, Mr. H. Littlewood, the President, being in the chair.—Mr. J. A. Coupland read a paper entitled "A Year's Experience of Salvarsan." He referred to 20 cases treated in the primary and secondary stages of the disorder. The treatment in the earlier cases had been by intramuscular injections; latterly by two intravenous injections of 0·5 or 0·6 gramme. The average period of observation had been six months. In two cases recurrence of secondary symptoms had followed at two and seven months' intervals after intramuscular injections. In one primary case recurrence had followed one month after 0·6 gramme intravenous injection. In all these cases further intravenous injections had produced a rapid disappearance of symptoms. In one case recurrence was present after two 0·6 doses, given intravenously. In two cases, in spite of a negative Wassermann, enlargements of lymphatics were still present, and he did not regard the cases as cured. In two cases the reaction had been alarming; in one this was immediate and to be attributed entirely to faulty technique. The solution injected was not clear, but showed a flocculent precipitate. This was given at a time when the giving of an emulsion intravenously was recommended, a method which was now entirely abandoned. In the second case two intravenous injections—0·6 gramme in a clear, slightly alkaline solution—had been given at a fortnight's interval to a patient who had contracted the disorder seven years previously. The reaction after the first dose had been very slight. Three days after the second the patient became dazed; on the fourth day he became comatose and had epileptiform convulsions and remained in this condition for two days. A complete recovery had followed. Mr. Coupland, after commenting on the similarity of this case to others recently reported, was inclined to attribute this alarming train of symptoms to the short interval between the injections and to the fact that the patient had not been confined to bed after the second injection. No symptoms of cerebral syphilis had been observed before the injections; the patient had lived a healthy life, but was in a very restless and worried condition before treatment. Half of

the cases treated had, however, been treated with a similar dosage without any bad symptoms, and in only two had the second reaction been slightly more pronounced than the first. He was inclined to advise a period of two months between the injections, and the maintenance of at least three days in bed both before and after every injection. A review of the fatal cases already recorded showed that faulty technique and the inclusion of cases of gross cerebral, arterial, or renal lesions were responsible for the great bulk of the fatalities. Further knowledge of the rate of excretion of the drug and the factors which disturbed it was needed before the degree of danger attached to this treatment were definitely determined. He laid stress on the fact that the most satisfactory results had so far followed the treatment of the primary stage of the disorder before a positive Wassermann had appeared; the diagnosis should first be corroborated by the finding of the specific organism. The importance of following up the cases so treated and the necessity of accumulating evidence of the permanent value of the treatment were referred to. Mr. Coupland thought that the obliteration of the secondary stage was already more rapid, more easily obtained, and more complete than could be obtained by mercurial treatment. The resulting improvement of the patients' health, as evidenced by absence of anæmia, by increase in weight, and by their frequently expressed sense of well-being, contrasted favourably with the conditions noted under the older treatment of the same class of hospital patient. The more rapid and complete obliteration of the secondary stage was regarded as of distinct value to the community, as it must surely diminish the risk of accidental infection of the family and associates of the syphilitic. The question of a subsequent course of mercury was at present an open one; it would certainly have to be adopted where a positive Wassermann persisted after repeated injections of "606." Its routine adoption could only stultify the experience which everyone was anxious to obtain as to the ultimate value of the remedy.—Cases and specimens were shown by Mr. J. F. Dobson, Dr. G. W. Watson, Dr. Alex. Sharp, Dr. T. Churton, Dr. J. B. Hellier, Mr. A. L. Whitehead, Dr. R. A. Veale, Mr. L. R. Braithwaite, Dr. C. Oldfield, Mr. W. Gough, Mr. H. Littlewood, Dr. T. Wardrop Griffith, and Dr. W. H. Maxwell Telling.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—A meeting of this society was held on Feb. 9th, Professor A. Bostock Hill, the President, occupying the chair.—Dr. G. A. Auden, in a paper on Open-air Schools, said that during the last decade popular imagination had been aroused to a recognition of the value of fresh air in the treatment of tuberculosis, but just as the value of sanatorium treatment for phthisis was very largely the education or effect which its popularity had upon the community, so, too, would this be the case with open-air schools. Valuable as such institutions would be to the individual child who was fortunate to obtain admission, they would fail of their chief opportunity if they did not lead to the application of similar open-air principles to the organisation of ordinary elementary schools. Open-air schools of the Charlottenburg type had now been established by several local education authorities in England, notably in Barnsley, Halifax, London, Norwich, Sheffield, Bradford, and Birmingham. In the two last-named towns buildings had been specially erected; in the others existing buildings had been adapted. After describing in some detail the Birmingham school, which was the gift of Mr. and Mrs. Barrow Cadbury, Dr. Auden stated that during the four last months of last year when it was occupied 89 children were in regular attendance. Of these, 35 per cent. showed great improvement, 50 per cent. some improvement, and 15 per cent. remained stationary. Investigations had shown that about 10 per cent. represented the number of school children whose malnutrition and depressed vitality called urgently for education on open-air lines. The same principles which underlay the open-air school organisation could be applied without difficulty to the school curriculum in the most crowded areas of a manufacturing city. One of the means which lay readiest to hand was the provision of playground classes. Finally, Dr. Auden insisted that the management of an open-air school should remain a matter entirely under the jurisdiction of the school medical officer.—Dr. E. W. Hope considered that all developments such as open-air schools must have an enormous influence in improving the condition of all schools, for it must be realised that even good schools are very far behind what is considered necessary. He approved of playground and roof classes.—Dr. W. Butler urged that if an open-air school was of such value to children below normal to whom exposure might be considered to be serious, how much more valuable should they be to the normal child. He thought that existing schools might be simplified and that permanent structures were not necessary, and advocated the closing of the sides of a school building by means of canvas stretched on wood, so that any or every side might be more or less completely opened.—Dr. C. Sanders deplored the apathy and want of interest among teachers who were afraid of draughts and had not been educated on modern lines.

NORTHUMBERLAND AND DURHAM MEDICAL SOCIETY.—An meeting of this society was held in the Royal Victoria Infirmary, Newcastle-on-Tyne, on Feb. 8th, Dr. A. Angus Martin being in the chair. The evening was devoted to the demonstration and discussion of medical and surgical cases as follows.—Dr. Martin showed a woman in whom he had removed the uterus for Chorion Epithelioma, and in whom there was evidence of secondary lung involvement, bloody expectoration, &c. She was in excellent health, some months having elapsed since hysterectomy. The specimen was also shown.—Dr. T. Beattie exhibited a boy, aged 18, the subject of Acute Chorea, accompanied by maniacal symptoms. He enlarged on the urgency of inducing sleep by heroic doses of hypnotics. The boy had mitral stenosis with regurgitation.—Mr. A. Parkin showed a case of Cervical Rib, on either side the rib pressing on the lower trunk of the brachial plexus and producing nervous symptoms, neuralgia, paræsthesiæ, &c. An operation had been performed on both sides, with cure on the right and some relief on the left side.—Mr. Parkin also brought forward a case of Irregular First Rib, its anterior end being deficient, and not coming up to its sternal articulation, but appearing to be attached to the upper surface of the second rib. The inner end of the clavicle was also malformed and less prominent than its fellow. The deformity was undoubtedly a rare one.—Mr. H. B. Angus showed a man from whom he had removed a large Sarcoma of the Thigh. The seat of disease was being treated with Coley's fluid, the dose having been increased to 10 minims. The patient was in good condition.—Dr. R. A. Bolam showed a case of Carcinoma of the Male Breast, which was receiving X ray treatment, and which exhibited a very marked degree of fibrosis and contraction. He also showed cases of Nævus Linearis and Pemphigus.—Mr. W. G. Richardson demonstrated a case after operation for Ruptured Gastric Ulcer, which was followed by pleural infection and empyema. It was of interest that on admission, four hours after rupture, pleural implication was suspected and constantly watched for.—Mr. J. Clay exhibited a case of apparent Spontaneous Cure of Epithelioma of the Penis in a patient with undoubted syphilis. The microscopic report was only "suggested" epithelioma, and thus the disappearance of the lesion under iodide and mercury might be accounted for by its being a gumma of the penis.—Dr. Hamilton Drummond showed a case of Traumatic Cerebral Hernia following Compound Fracture in the Right Temporal Region. Spontaneous cure was looked for.—Dr. Horsley Drummond showed a case of Cachectic Infantilism, the patient being 22 years old, and 4 feet 6 inches in height. He had markedly enlarged liver and spleen and considerable dyspnœa. A positive Wassermann reaction had been obtained, while no evidence of pancreatic disease could be demonstrated. It was suggested to be of pituitary origin.

DEVON AND EXETER MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 9th, Dr. R. V. Solly, the President, being in the chair.—Dr. F. W. Price (London) read a paper on Recent Advances in Heart Disease. The paper was illustrated by the polygraph. He contrasted the respective rates of advance of medicine and surgery. He then discussed cardiac irregularities in patients with no evidence of valvular disease, and the diverse results of treating identical lesions with digitalis. He reminded his hearers that irregularity might be the only detectible physical sign of myocardial degeneration. He maintained that the variability of action of digitalis was due neither to caprice nor to diversity of the preparations of the drug. The enormous advance in knowledge of cardiac disorders was largely related to the graphic methods rendered possible by the advent of the clinical polygraph. Dr. Peric

then demonstrated the Mackenzie polygraph. He laid especial stress on the importance of studying the *a.-c.* interval with a view to accurate comprehension of the conductivity possessed by any given heart. By means of the polygraph irregularity, from being a vague and complex unity, had now become a classified disease. Dr. Price then passed on to the problem of digitalis, and stated that those cases of cardiac failure which showed markedly good results were cases of auricular fibrillation. In conclusion, he pointed out the harm which would accrue from the exhibition of digitalis in cases of depressed cardiac conductivity, and hence the importance of the investigations now made possible by the graphic methods.—The President, after thanking Dr. Price on behalf of the society for his interesting and valuable paper, discussed the question of cardio-sclerosis without valvular lesion. He also asked Dr. Price what value he attached to the use of strychnine in cardiac disease and what treatment, if any, was of value in cases of heart-block.—Dr. A. E. Carver mentioned his frequent observation of a dropped beat form of irregularity in senile cases exemplifying sinus irregularity. He had found the polygraph invaluable both at the beginning and end of treatment as a gauge of progress. He endorsed the value of digitalis in massive doses where irregularity was related to auricular fibrillation. —Dr. Price, in reply, said that the action of strychnine, so far as was known, appeared to be *viâ* the blood-pressure apparatus. No drug had yet been found capable of stimulating the ventricle in heart-block.

WIGAN MEDICAL SOCIETY.—A meeting of this society was held on Feb. 8th, Mr. F. L. Angior, the President, being in the chair.—Dr. R. Prosser White showed: 1. Acrodermia Neuritica. The patient sustained an injury to the right hand and forearm four years ago. At the present time there was progressive atrophy of all the constituents of the forearm and hand, bone, muscle, and skin. The latter was exceedingly thin, ulcerated in places, and acutely sensitive. Also X ray photograph. 2. Dermatitis Artifacta. A girl, about 16 years old, whose only symptom was the appearance about once a week of one or more bullæ on left arm and shoulder. These arose in the night and were first seen when she got up in the morning. She was admitted as an in-patient and treated by rest, isolation, suggestion, and feeding, and no fresh bullæ had appeared. 3. Molluscum Fibrosum. A woman with warty-looking fibroid growths in the left axilla. Also section of one under the microscope.—Dr. Harry Holmes showed: 1. A case of Tumour of the Pituitary Gland. A man, aged 27, height about 4 feet, at present nearly blind, and suffering from enormous protrusion of both eyeballs. Hair scanty and thin. Reproductive organs elementary. He had fits of some kind at the commencement of his illness, and then bi-temporal hemianopsia. Dr. Holmes referred to the two types of case due to pituitary tumour. The man had been seen by several surgeons, but operation had not been advised. 2. A case of Xerosis of the Conjunctivæ. The right cornea was now quite opaque, and the left was rapidly following. This condition he considered was due to some general systemic disease, such as congenital syphilis. The case has been under a variety of forms of treatment—antisyphilitic, thyroid, tubercular, &c.—but steadily retrogresses.

UNIVERSITY COLLEGE, DUBLIN, MEDICAL SOCIETY. —A meeting of this society was held in the College on Feb. 8th, Mr. J. S. McArdle being in the chair.—Professor E. J. McWeeney read a paper on Recent Views as to the Nature and Causation of Cancer. He outlined the various theories generally held, and emphasised the importance of the "irritation theory," but said that in cases where irritation gave rise to malignant disease they had to suppose another factor in the case—viz., the presence of a certain abnormal type of cell, the exact characteristics of which were still unknown. He outlined the work done, and still being done, in England, Germany, and other countries, on the inheritance of malignant disease in mice, and showed lantern slides of tables summarising the results. He also referred to the interesting results obtained in the endeavour to produce immunity from malignant disease in mice by the injection of pieces of embryonic mouse tissue. In spite of these results in mice the lecturer was of opinion that they were by no means as applicable to man as might be supposed, and suggested that the most fruitful line of work would be that of Wassermann, who has been trying to find, already with some measure of success, a synthetical drug capable of picking out the cancer cells and destroying them.[1]—The subsequent discussion was taken up by Dr. W. M. Crofton, Dr. J. H. P. Boyd Barrett, Mr. J. H. McAuley, Mr. H. S. Meade, and Dr. M. R. J. Hayes.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 4th, Mr. M. Parry Jones being in the chair.—Dr. A. C. Reid introduced a discussion on Trauma as a Factor in Some Diseases of the Nervous System. The subject of brain tumour and brain abscess was briefly referred to. More detailed reference was made to late traumatic apoplexy and meningitis, the work of Duret and Bollinger being specially mentioned.[2] Quincke's meningitis serosa was next brought under review: an interesting case published by Kurt Mendel and a recent case of acute acquired hydrocephalus following on shock being adduced as evidence of a possible traumatic origin for this rare condition. Myelitis and myelodelesis (Kienböck) were rapidly reviewed. Under the heading of "neuritis" special notice was taken of Erb's shoulder-arm paralysis. The paper concluded with remarks on traumatic epilepsy.—Mr. Parry Jones, Dr. F. H. Jacob, Mr. K. Black, Mr. A. R. Tweedie, Mr. A. M. Webber, and Dr. R. Heelis continued the discussion.

Reviews and Notices of Books.

A Text-book of Physiological Chemistry. By OLOF HAMMARSTEN, Emeritus Professor of Medical and Physiological Chemistry in the University of Upsala. Authorised Translation from the Author's Enlarged and Revised Seventh German Edition. By JOHN A. MANDEL, Sc.D., Professor of Chemistry in the New York University and Bellevue Hospital Medical College. Sixth American edition. London: Chapman and Hall, Limited; New York: John Wiley and Sons. Pp. viii.–964. Price 17*s.* net.

THIS edition differs from the earlier ones by containing a new chapter on "Physical Chemistry in Biology," written by Professor S. G. Hedin, of Upsala. To give room for this new chapter, without changing the number of chapters in the earlier editions, the chapter on "The Animal Cell" has been dropped and its contents incorporated in other chapters. Otherwise the general plan remains unchanged, though necessarily with the great advances in physiological chemistry a considerable increase in the size of the book could not be prevented. The subjects successively dealt with after the introduction are: Physical chemistry in biology; proteins; carbohydrates; fats and phosphatids; blood; chyle, lymph, transudates and exudates; liver; digestion; connective tissues; muscles; brain and nerves; organs of generation; milk; urine; skin and its secretions; respiration and metabolism. The indexes of authors and the general index are both very full and complete.

It should be noted that there are no illustrations of any kind, either of spectra, apparatus, crystals, or curves, although smaller type is used to mark the less important matter. The result is that the text contains an enormous amount of information, the references to original papers when required being given at the foot of the page. A good, all-round grasp of organic chemistry is required to follow the work.

In the introductory chapter, which is admirably and concisely written, the reader is introduced straight away to the difficult and obscure problem of oxidation in animal tissues, and the newer results on oxidases, and such subjects as enzymes, "enzymotic" action, lipoids, and their suggested uses as a boundary layer in cells, autolysis and allied

[1] THE LANCET, Jan. 13th (p. 112) and 27th (p. 264), 1912.
[2] THE LANCET, Nov. 6th, 1909, pp. 1339 1360.

subjects, while the importance of ions is clearly emphasised. In the chapter on "Physical Chemistry" osmotic pressure, colloids, the importance of the ultra microscope, adsorption, gels, sols, catalysis, enzymes, their specific and their reversible actions, antigens and antibodies, ions and salt action, and allied subjects are treated in an interesting and practical manner.

A very full account is given of the proteins, amino-acids, polypeptides, and all the recent work which has been the outcome of the brilliant and stimulating researches of Emil Fischer. Perhaps on p. 86 "linkage" would be a better expression than "bindings" when the author is speaking of the possible combinations of amino-acids. The fact that no single protein reaction is in itself characteristic is emphasised, and, therefore, in testing for proteins one reaction is not sufficient. A number of precipitation and colour-tests must be employed. On p. 109 "Miesher" is obviously a misprint for Miescher; the name is correctly given elsewhere and in the index. Kühne's view on tryptic proteolysis is rightly set aside in the light of recent research, though, unfortunately, it still finds a place in some English text-books. The amino-acids are fully treated, as are also the purin bases, which in the last few years have attracted great attention both on the part of the chemist and the physician. The account of the carbohydrates and that of the fats are much on the lines of the last edition, but the phosphatids find their natural setting in this edition along with the fats.

Blood is concretely and fully dealt with. Perhaps on p. 243, for "effusion" of the mouth of the medicinal leech, the term "leech extract," as used in English text-books, would be more appropriate. In any case, "effusion" does not seem the correct word. The obscure subject of the origin of fibrinogen is critically discussed. In describing the oxygen absorption by hæmoglobin a curve showing this would be much more effective. We failed to find, either in the text or the index, a reference to the work of Soret on the absorption bands in the ultra-violet part of the spectrum, known in this country as the "bands of Soret," though Gamgee's work on this subject—which was subsequent to that of Soret—is referred to. The occurrence of hæmoglobin crystals in the stomach of the leech and the work of Brito and Stirling seem to be omitted. On p. 295, when speaking of the "tissue fibrinogen" of Wooldridge, instead of "digesting leucocytes with water," perhaps it would be better to state how Wooldridge employed the thymus gland.

Chyle, lymph, and allied subjects occupy pp. 327–359, while the liver is dealt with from pp. 360–425. In speaking of the occurrence of glycogen in the liver of molluscs, the mussel, but not the oyster, is mentioned. The account of digestion is elaborate, but concise. Here, again, curves to show rates of secretion would be valuable as well as helpful. As to absorption and the forces active in the intestine, "the question has not been answered." Consecutive chapters deal with connective tissue, muscles, brain and nerves, organs of generation, milk, and urine, and we find a singular mistake on p. 756 in connexion with the sulphur test for the bile salts in urine. It is attributed to Haycraft instead of Matthew Hay—a mistake that has been made before. The skin and lungs (pp. 789–821) are next considered, and then metabolism (pp. 822–880). A very guarded opinion is given on Chittenden's observations on diet, which will be found on p. 877.

The work is highly to be commended as a treasury of facts and as a critical, well-reasoned exposition of those facts in relation to the chemical activities and processes that occur in animals. We cordially commend it as a text-book and a book of reference.

Diseases of the Anus, Rectum, and Sigmoid, for the Use of Students and General Practitioners. By SAMUEL T. EARLE, M.D., Professor Emeritus of Diseases of the Rectum at the Baltimore Medical College; Surgeon in Charge of Rectal Diseases at St. Joseph's Hospital, the Hebrew Hospital, and the Hospital for Women. With 152 illustrations. Philadelphia: Lippincott Company. 1911. Pp. 476. Price 21s. net.

MANY medical men in practice find the knowledge of diseases of the rectum acquired when they were students inadequate for their daily work, and this book may afford them real assistance.

The anatomy and physiology of the rectum are sufficiently described to recall to the reader the essentials. The author considers that in the majority of rectal operations it will be found more satisfactory to use a general anæsthetic, unless its employment is specially contra-indicated. He is opposed to spinal anæsthesia, partly because of the deaths which have occurred under it, and partly on account of some of the sequelæ. A long chapter is devoted to the consideration of the treatment of constipation. The general methods of treatment—such as diet, exercise, and massage—are well descibed, and then the simpler operations for the removal of mechanical obstructions are detailed. An important chapter is that on ano-rectal fistula, and the subject of hæmorrhoids is carefully considered. The author describes a modification of Whitehead's operation, which he has found very satisfactory; it really consists in excising each hæmorrhoid separately and suturing the cut edges together.

Probably the most difficult subject in the surgery of the rectum is the question of the operation to be chosen in removing malignant disease of this portion of the bowel. The author speaks very favourably of a modification of Kraske's operation, by which the portion of the sacrum below the fourth sacral foramen is separated from the rest of the bone and turned to one side, to be replaced in position at the close of the operation. He has never met with necrosis of the portion of bone resected, but he acknowledges that the operation brings with it a large amount of shock. The chief merit of this method of operation is, in his opinion, that it involves injury to the sacral nerves and lateral sacral arteries on one side only. He holds that it is always possible to get sufficient of the bowel down from above to suture to the margin of the anus, and therefore he never finds it necessary to make a sacral anus. He does not consider that the abdominal or combined routes are often indicated.

On the whole, this work is good. The only real criticism to be made on it is that the author is somewhat too prone to quote verbatim the opinions of others, rather than to express the opinions which he has himself formed.

Practical Anæsthetics. (Oxford Medical Publications.) By H. EDMUND G. BOYLE, M.R.C.S. Eng., L.R.C.P. Lond., Assistant Anæsthetist to St. Bartholomew's Hospital; Demonstrator of Anæsthetics to the Medical School of St. Bartholomew's Hospital, &c. Second edition. With illustrations. London: Henry Frowde and Hodder and Stoughton. 1911. Pp. 209. Price 5s. net.

Mr. Boyle's text-book has already made a place for itself. It is now enlarged by the addition of a chapter on spinal analgesia and by fuller treatment of the administration of open ether. The chapter on spinal analgesia is not very full, and Mr. Boyle does not, we think, sufficiently differentiate between the value of high and of low punctures. He rather leads his readers to place them on the same level of usefulness, an opinion which we do not imagine he holds himself, and which is certainly, we think, not held by the majority of anæsthetists in this country. His reasoning, however, as to the

selection of spinal analgesia in certain cases and its avoidance as a routine appears to us sound. Having included spinal analgesia, he might for the sake of completeness have added also a chapter on regional and infiltration methods.

In discussing the question of shock Mr. Boyle states that a deep degree of anæsthesia is safer for the patient than a light one. This is a position which many would assail; certainly it needs qualification. Where chloroform is the anæsthetic we believe the exact converse to be true. Sufficient anæsthesia, of course, there must be, but granted complete unconsciousness and absence of conjunctival reflex, then the more lightly the patient is under chloroform during an operation involving severe shock, the more certainly we believe will the circulatory and respiratory functions continue to be adequately performed. The justification for very deep anæsthesia as a preventive of shock we believe to be a relic of the impressions produced in by-gone days by severe reflex symptoms following upon an incision made during incomplete anæsthesia. Further on in his book Mr. Boyle proceeds to show admirably how a deep chloroform anæsthesia in itself imitates the phenomenon of shock. He will therefore, we are sure, agree with us that it is not a condition to be induced when shock is present or anticipated. Mr. Boyle treats of collapse as a terminal condition of shock. It is more often regarded as an analogous condition produced especially by loss of body fluids, shock being due to exhaustion of nerve centres. This is perhaps merely a theoretical question, and at any rate Mr. Boyle's practical directions for treating the conditions are very good, though the employment of strychnine where pure shock is concerned is, of course, deprecated by those who hold that explanation of the condition to which we have referred.

With regard to the use of open ether, of which the author gives a concise account, he approves of the preliminary use of morphine and atropine, but does not mention scopolamine, which is a drug very worthy of consideration in this connexion. He gives an accurate account of the well-known "Bart.'s" method of giving chloroform, one which we think is not to be preferred to the use of some firmer kind of open mask.

Applied Biology: An Elementary Text-book and Laboratory Guide. By MAURICE A. BIGELOW, Ph.D., Professor of Biology in Teachers' College, Columbia University; and ANNA N. BIGELOW, M.S., Teacher of High School Biology. New York: The Macmillan Co. 1911. Pp. 583. Price 6*s.* net.

THIS book is intended by its authors to serve as a combined text-book and practical guide for a year's course of five hours a week. Its scope is wide enough, for it attempts to select from the fields of botany, zoology, and human biology the essential facts, and especially the great ideas, of the science of life which are of interest to the average intelligent person who has no time and reason for more extensive study of biology. The authors have accumulated and set forth in an orderly fashion such a mass of facts—including an account of experiments to demonstrate these facts—that "a year's course" rather understates the case. The authors' outlook is both wide and philosophic, for in its purview it includes the ideas of biology as they apply to human life in its combined intellectual, æsthetic, economic, and hygienic aspects.

Part I. deals with introductory matter and the Principles of Zoology, including such trite subjects as changes and composition of lifeless and living matter, the characteristics of living things, the structure and life of an animal—the frog being taken as the type—the structure and life of a plant with the bean as a type. A comparison of animal and plant biology follows and also a classification of animals and plants. It would appear that there is a "Teachers' Manual of Biology" which is designed to accompany this book, but it has not reached us. There is a concise paragraph on the "justifiable use of animals for science study." We can hardly consider the following a correct or adequate description: "The posterior, conical, whitish part of the frog's heart is called *ventricle*." Some of the physiology is of doubtful character. No indication is found of the size of milk globules (p. 47), while the figure of "a nerve cell and its fibers" can hardly be recognised as typical.

Part II. deals with Principles of Biology, illustrated by Types of Plants, beginning with an excellent and graphic account of "seed-plants," and ending with an attractive description of "spore-plants." In studies of spore-plants, while Pasteur's experiments on yeast are mentioned, the name of C. de la Tour finds no place. Why is not the exact formula of the sugar and other constituents in Pasteur's solution given? In the section on bacteria we looked in vain either in text or index for the name of Lister, while Koch's name is associated in the index with malarial organisms, the compiler of the index never apparently having looked at p. 291, whereon is recorded Koch's salient discovery of the tubercle bacillus.

Part III. deals with Principles of Biology, illustrated by Types of Animals, Invertebrate and Vertebrate, in which a very readable account is given of the subject. The economic relations are interestingly set forth, and it will come as a surprise to many to learn that "Grasshoppers destroyed crops to the value of $200,000,000 in Iowa, Missouri, Kansas, and Nebraska in four years." The statement that "the alimentary canal is essentially the same in all birds" (p. 432) is incorrect. In regard to the respiratory power of birds, we failed to find a reference to the size, number, and superficial area of their red corpuscles.

In Part IV. Principles of Biology applied to Human Structure and Life are introduced in an attractive form.

The book will prove useful and suggestive both to students and teachers of biology in its widest aspects. Most of the illustrations are taken from well-known authorities.

Dental Anæsthetics: A Text-book for Students and Practitioners. With a Contribution on Analgesia by JOHN BOLAM, L.D.S. Edin., Honorary Assistant Dental Surgeon, Newcastle-upon-Tyne Dental Hospital. By WILFRED E. ALDERSON, M.D., M.S. Durh., B.Hy., D.P.H., Honorary Physician, Newcastle-upon-Tyne Dispensary; Senior Honorary Anæsthetist, Newcastle-upon-Tyne Dental Hospital; Lecturer on Dental Anæsthetics, Newcastle-upon-Tyne Dental School. Bristol: John Wright and Sons, Limited; London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited. 1911. Pp. 100. Price 2*s.* 6*d.*

THIS little book is a *résumé* of Dr. Alderson's lectures to dental students. The compression into brief dogmatic subdivisions which renders the subject matter easily available for reference on any individual point, makes at the same time for uncomfortably jerky reading. It is doubtless inevitable in a little work of this kind. Dr. Alderson is commendably emphatic upon the undesirability of using chloroform for dental operations. As he well points out, these operations are never operations of absolute necessity, and therefore it is never justifiable to run any risks with the anæsthetic. We think he might with advantage have bestowed more attention upon the continuous use of nitrous oxide and also upon details in connexion with dental ether cases, such as the proper use of sponges, designed to obviate the occurrence of after-sickness. Again, in his consideration of contra-indications to the use of nitrous oxide we should have liked to see special mention of cellulitis of the neck with some œdema of the glottis, a condition in which the use of nitrous oxide is highly inadvisable, and in which it is

likely to be suggested, owing to the presence of carious teeth as a suspected cause of the cellulitis. Dr. Alderson's general instructions are sound, and particularly we welcome a passage in which he points out the inadvisability of allowing the responsibility of choosing the correct anæsthetic to fall upon a man who has had solely a dental training. A useful chapter upon analgesia by Mr. John Bolam concludes the book, and will be not the least of its attractions for the dental student.

Die Lehre von der Krebskrankheit von den Aeltesten Zeiten bis zur Gegenwart. Von Sanitätsrat Dr. JACOB WOLFF, prakt. Arzt in Berlin. II. Teil, mit einer Abbildung im Text. Jena: Gustav Fischer. 1911. Pp. 1261. Price, paper, 26 marks; bound, 39 marks.

THIS is the second part of a great work on malignant disease, in which the author has gathered together all the knowledge of cancer from the earliest times to the present date, and has digested it so that now it forms a well-arranged whole. The first volume was concerned mainly with the general aspect of malignant disease, while in the present part the malignant affections of special organs are dealt with as well as the question of the biological and clinical etiology of cancer. The important subject of precancerous conditions is discussed, and the relation of malignant disease to other conditions is reviewed. The varieties of malignant disease are described. Chapters are devoted to the manifestations of the disease, metastases, recurrences, and its metabolism. After discussion of the general diagnosis, the remainder of the volume is concerned with the cancer of individual organs.

Criticism of a work such as this is impossible in any detail. It is vast, thorough, and complete, and all readers must acknowledge the industry and the energy of the author, and appreciate the value of the work he has carried out in providing surgeons and pathologists with so useful a summary of our knowledge of malignant disease.

A Manual of Fevers. By CLAUDE BUCHANAN KER, M.D. Edin., F.R.C.P. Edin., Medical Superintendent, City Hospital, Edinburgh, and Lecturer on Infectious Diseases to the University of Edinburgh. London: Henry Frowde and Hodder and Stoughton. 1911. Pp. 314. Price 7*s.* 6*d.* net.

THIS manual is intended for the use of students who are taking the prescribed course of study of the infectious fevers at an isolation hospital, and is written with a view to supply the theoretical and systematic information necessary for the full use of the practical opportunities afforded by the cases in these hospitals.

The first chapter of the work is introductory in character and is devoted to a brief but clear statement of the general nature of infection, immunity, and the febrile state. The second chapter contains useful descriptions of rashes and hints in regard to the examination of the skin and of the throat. The various rashes are classified into three groups—the erythematous rashes, those the elements of which contain lymph or pus, and the hæmorrhagic eruptions. The importance of examination of the throat as a routine measure in all sick children is forcibly emphasised, and the method of carrying out this procedure most effectively without frightening or hurting the child is described.

The individual fevers are then considered in separate chapters in the following order—measles, rubella, scarlet, fever, small-pox, vaccinia, chicken-pox, typhus fever, enteric fever, diphtheria, erysipelas, whooping-cough, mumps, and cerebro-spinal meningitis. Each disease is described systematically from the clinical standpoint, full accounts being given of the symptoms and their variations, of the course of the fever, and the nature, distribution, and effects of the rash. Diagnosis and treatment are also discussed in a thoroughly clear and practical manner. Short paragraphs are given describing the morbid anatomy, the blood changes, and where this is known the nature and character of the infective agent. The descriptions given are in simple language and are not mere transcriptions of text-book accounts, but are obviously based upon a large personal experience. They are illustrated by a few plates and by numerous reproductions of typical temperature charts.

The book should well serve the purpose for which it is written, and should also justify the hope expressed by the author in his preface that it may not cease to be useful when its owner has entered upon general practice.

The Law Relating to Medical Practitioners and Dentists in Great Britain, with an Appendix of Statutes. By J. N. MORTON, M.A., Solicitor, Secretary of the Western Medical School, Glasgow. London and Edinburgh: William Green and Sons. 1912. Pp. 148. Price 7*s.* 6*d.* net.

Mr. Morton has compiled a brief exposition of the law relating to the medical profession, in the form of a series of paragraphs grouped in chapters and followed by explanatory notes illustrated by reference to cases. These are followed by an appendix consisting of the Medical Acts, the Anatomy Acts, and the Dentists Act, 1878, and an index. There is also a table of contents and an index of reports and abbreviations.

The subject is one upon which, so far as we are aware, no good modern text-book exists, and the writer has the advantage of familiarity with the Scottish law relating to it, but at the same time the law, so far as it immediately concerns medical practitioners, comprises, in our opinion, a good deal more than can readily and usefully be compressed into 150 octavo pages; so that a work dealing with it, to be really satisfactory, should contain information upon topics which Mr. Morton has not dealt with at all. His opening paragraph, which apparently contains all that he has to say as to the use by the unqualified of titles implying qualification, is an example of brevity which is, to say the least, excessive. Among omissions it may be mentioned that the chapter on medical men as witnesses contains no statement of the fees fixed for them by regulation in criminal cases in England, nor do we find any reference to their appearance before coroners.

Interne Klinik der Bösartigen Neubildungen der Bauchorgane. Von Priv.-doz. Dr. RUDOLF SCHMIDT, K.K. Primararzt am K.K. Kaiserin Elisabeth-spital, Wien. Mit einer farbigen Tafel. Berlin und Wien: Urban und Schwarzenberg. 1911. Pp. 355. Price, paper, 12 marks; bound, 14 marks.

FEW diagnoses are of greater importance than those connected with the nature of an abdominal swelling. On the one hand, the belief that a malignant tumour is merely inflammatory in nature may induce the surgeon to allow the time to pass by when operative interference might have been undertaken with a good hope of success; while, on the other hand, to diagnose a simple inflammatory swelling as a malignant growth will in the first instance cause much unnecessary pain to the patient and his relatives, and later may lead to a useless laparotomy. The importance of this decision is, however, almost equalled by its difficulty, and therefore it behoves medical men to devote much care to this matter.

This book has been written mainly with the purpose of assisting in the diagnosis of abdominal diseases, and it appears to be very well suited for its purpose. The first 60 pages are devoted to general considerations, such as the external examination, the internal examination, and the

use of the Roentgen rays and the "diazo" and "aldehyde" reactions of Ehrlich. The several organs are then taken in order, and in each case the early symptoms of malignant disease are detailed; the physical examination of the organ is described; then the course and duration of the condition, and, lastly, the differential diagnosis are given. The latter half of the volume contains reports of a large number of cases that have been under Dr. Schmidt's care. These should prove very useful in assisting the reader to appreciate the points on which a diagnosis is based.

The book is well written, but we should have preferred more illustrations. There is, it is true, an excellent coloured plate showing the bacteria present in a number of conditions, but the volume contains no other illustration.

Medici e Ispettorato del Lavoro. (Publication of the Permanent International Committee for the Study of Industrial Diseases, Milan.) By Dr. LUIGI CAROZZI. Cusano: A. Colombo e Figli. 1911. Pp. 176.

THE author of this work on the Medical Inspection of Factories has been secretary of the Permanent International Committee for the Study of Industrial Diseases since its formation in 1906, having its headquarters now, with library and laboratories, in the Clinic for Industrial Diseases in Milan. Dr. Carozzi has studied his subject deeply in Belgium and England, where the value of medical inspection in factories has been recognised for many years. Germany in this respect has lagged behind, although in Baden and Würtemberg—but not in Prussia—medical appointments in the factory departments have been made within the last few years. Holland and Austria, also, have recently made similar whole-time appointments. In France and Prussia systematic medical intervention in factories appears to be limited to periodical medical examination of workers in a few specially dangerous trades. Belgium has had four medical inspectors of factories since 1905, with, as their chief, Dr. D. J. Glibert, whose scientific outlook on the problems confronting him has influenced continental opinion not a little in favour of the Belgian system.

Dr. Carozzi, however, deals not only with the activities of permanent officials, but also with the duties and functions of certifying and appointed surgeons (*médecins agréés*). The certifying surgeons in this country, he says, represent "la forza incondizionata" of the medical service. But it is evident that his ideal is the full-time factory surgeon independent of everybody but the State, and working in association with a laboratory and clinic for occupational maladies and accidents. Before this can be reached, however, he recognises that much more prominence must be given to the subject in the medical curriculum than is the case at present.

The author treats his subject in each of the principal countries of Europe historically. Mention is made of all the principal enactments creating or extending the duties of medical men in regard to industry, and there is a useful bibliography, not only of the subject generally, but also of the individual researches of the various medical inspectors of factories.

Traitement adjuvant du Strabisme. Par F. TERRIEN et HUBERT. Paris: G. Steinheil. 1912. Pp. 292. Price 4 francs.

THIS is one of the best of the many small monographs on squint which have appeared.

The book commences with a general discussion of the subject, and describes the manifestations of squint, its nature and evolution. Its cerebral origin is asserted, and adjuvant factors, such as errors of refraction, are allotted their appropriate sphere. In dealing with convergent strabismus, the indications for atropine are discussed, and its application to the fixing eye, in order to prevent the development of amblyopia in the squinting eye or to improve its vision by exercise, is rightly advocated. Occlusion of the fixing eye with the same object is recommended as an alternative treatment, correction of hypermetropia by glasses receiving adequate attention. A chapter on divergent strabismus deals briefly with the myopic element commonly present, and discusses the use of prisms and tenotomy of the external recti. A chapter on astigmatism and anisometropia follows, thus completing the preliminary excursus and leading up to the main subject matter of the book—viz., the relation of squint to binocular vision and the orthoptic treatment of the disorder.

Orthoptic exercises are introduced by an excellent account of Rémy's diploscope and its various uses, followed in logical sequence by Javal's bar reading, Worth's amblyoscope, the synoscope and the stereoscope. These subjects are all familiar, with the exception of the synoscope, an instrument introduced by the authors. It may be regarded as a further development of the principles of the diploscope, and appears to us thoroughly to justify its existence as a simple and valuable instrument for orthoptic treatment. The various steps in the treatment of a case of convergent squint—the development of simultaneous vision, the fusion of the double images, the establishment of binocular vision and its gradual improvement by diploscopic and other exercises—are lucidly described. After a short chapter on the orthoptic treatment of divergent strabismus the use of the stereoscope is discussed.

We can confidently recommend the book as an admirable introduction to the rational treatment of squint.

Lehrbuch der speziellen Chirurgie. Von HERMANN TILLMANNS, Dr. Med. et Sc., Geheimer Medizinalrat und Professor an der Universität Leipzig, Generalarzt à la suite des Königlich Sächsischen Sanitätskorps. Neunte, verbesserte und vermehrte Auflage. Part I.: Pp. 888, with 647 illustrations. Part. II.: Pp. 1079, with 783 illustrations. Leipzig: Veit and Co. 1911. Price, paper, 50 marks; bound, 55 marks.

Tillmanns's "Surgery" has occupied for many years a very prominent position in German surgical literature, and its English translation has had a large circulation in this country and in America. It is hardly necessary to add that the work is fully deserving of the reputation it possesses. The volumes which we are now noticing constitute the special part of the "Surgery," as "General Surgery" forms a separate volume.

The present issue of the special part of the work has undergone a very complete revision in order to bring it completely up to date; many chapters have been rewritten, and in many ways it is almost a new book. Some of the older illustrations have been withdrawn and many new ones have been added. On the whole, the illustrations are very good and clear, but some of them are on a small scale, which renders them less useful than they would otherwise be; this applies mainly to some of the older blocks which date from the earlier issues. A few of the illustrations are in colours, and these are especially good. The characteristic of the work has always been that it contains a full account of the various branches of surgery, giving the chief prominence to the most important subjects, but without neglecting the less employed methods of treatment.

The favour with which earlier issues have been received should be extended also to this edition, for it is equally well deserved.

LIBRARY TABLE.

Case Histories in Medicine, Illustrating the Diagnosis, Prognosis, and Treatment of Disease. By RICHARD C. CABOT, M.D., Assistant Professor of Clinical Medicine, Harvard Medical School. Second edition, revised and enlarged. Boston: W. M. Leonard. 1911. Pp. 295. Price $3.00.—In the second edition of this book Dr. Cabot has gone more into details as regards prognosis and treatment than in the previous edition. The order of the cases has been changed by grouping them under the headings of Infectious Diseases, Gastro-intestinal and Biliary Tract, Urinary Tract, Circulation, Respiratory System, Nervous System, Lymphatic and Ductless Glands, and Diseases of Unknown Origin. Each clinical case is briefly stated in all its important features, and certain questions arising therefrom are formulated and answered. The value of each point noted is then discussed and a diagnosis is suggested. The prognosis and treatment next receive consideration. The author expresses the hope that he will continue to be aided by the frank criticism of those who differ from him in regard to his diagnosis, prognosis, or treatment. A very interesting note on drug therapy has been added, to refute the charge of therapeutic nihilism so often levelled against medical teachers. The author discusses therein the present outlook for drug therapy, placebos, the homœopathic principle and modern dosage, and presents a working list of drugs drawn up on the basis of those actually used by the physicians of the Massachusetts General Hospital staff during the past four years, 50,000 prescriptions having been scrutinised for the purpose. We repeat that the book is likely to prove useful both to students and practitioners.

Aids to Ophthalmology. By N. BISHOP HARMAN, M.A., M.B. Cantab., F.R.C.S. Eng., Lecturer in Ophthalmology, West London Post-Graduate College. With 100 illustrations. Fifth edition. London: Baillière, Tindall, and Cox. 1912. Pp. 216. Price, 2*s.* paper, 2*s.* 6*d.* cloth.—The fifth edition of this book has undergone a thorough revision. A table of contents and some 60 new illustrations have been added. The subjects of glaucoma, optic neuritis, and muscle balance have been allotted more space, while the subject of refraction now occupies seven chapters. A chapter on ocular therapeutics has also been added. So long as this and similar works are not regarded as text-books, but are used for review only, they will fulfil a useful purpose for the student and the general practitioner.

Life, Death, and Immortality. By W. HANNA THOMSON, M.D., LL.D. New York and London: Funk and Wagnalls Company. 1911. Pp. 117. Price $1.00 net.—The author of this little book on a great subject is past president of the New York Academy of Medicine, and has already written on the deep questions of life and personality. In little over a hundred pages it is not to be supposed that the treatment of such subjects can be other than introductory and stimulant to further study. This is apparently what Dr. Thomson has aimed at, and he has succeeded, his familiarity with psychology and psychological medicine giving him a deeper insight than that possessed by the ordinary physician. He traces the beginnings of life on the earth and the development of the personal being, man; shows the impossibility of explaining the development and growth of organised beings as the result of chance; and just hints at the hereafter. It may be doubted if that division of the kingdom of life that consists of microscopic unicellular organisms is "characterised by the greatest variety of distinct and permanent species" (p. 74); one would be more inclined to say that permanence is not the characteristic of bacterial "species," if by permanence is meant immutability. This, however, in no way affects the author's argument. Although, perhaps, there is nothing absolutely novel in Dr. Thomson's views, the manner of treatment is so attractive and the exposition so clear, and in the best sense of the word popular, that the book may be read with interest and profit by everyone. It is stimulating and refreshing.

Circumstances or Character? Studies in Social Work. By CLEMENT F. ROGERS, M.A. London: Methuen and Co., Limited. 1911. Pp. 218. Price 3*s.* 6*d.* net.—The author has collected a number of papers and addresses that he has written or delivered during recent years on various aspects of social work. He is a strong supporter of the Charity Organisation Society, and his object has been, in part at any rate, to justify its aims and methods. After an introductory section on fundamental principles, he treats of charity and the Church briefly but adequately from the historical point of view. Beginning with the short but significant references that are found in the New Testament, from which we learn that widows and orphans, the sick and the aged, and prisoners were cared for, Mr. Rogers traces the defective methods and encouragement of beggars that became general in the Middle Ages and after. An interesting chapter collects some references in eighteenth century literature to charity in England; it practically merely meant, as a rule, the giving of doles, which Mr. Rogers, of course, emphatically condemns. We think, however, that he is not just to Miranda, the heroine (or one of the heroines) of Law's "Serious Call," who, according to Mr. Rogers, did "everything that the Charity Organisation Society holds to be anathema." The point of view in those days was, no doubt, different from ours, but, at any rate, this benevolent lady not only gave away her money but employed her time in personal investigations as to the recipients of her charity; she set up poor tradesmen in business, put poor children in the way of employment, and comforted poor people who were too old to work, all being done in her own neighbourhood, where she knew the circumstances. That she did it, as Mr. Rogers says, "without discrimination" is his gratuitous supposition. In this same eighteenth century that our author rather girds at we find Fielding, in his "Covent Garden Journal," denouncing the giving of money to beggars as "a crime against the public," and in his well-known "Inquiry into the Late Increase of Robbers," dividing the poor into three classes—those unable to work, those able and willing, and those able but not willing, and prescribing appropriate treatment for each. The difficulty, he wrote, is the method of adapting—i.e., the bringing the workers and the work together. This is one of the chief objects of the Charity Organisation Society to-day, but it was also advocated in the despised eighteenth century by Fielding, who did other things besides write "Tom Jones." Mr. Rogers justly calls attention to the "almost complete ignorance of the work of the friendly societies" on the part of the clergy and of the feeling of irritation that this naturally gives rise to, and he mentions, only to condemn, the spurious form of thrift called "slate clubs," often supported by the clergy in ignorance of the injury they do to the *bonâ fide* friendly societies. There is much also worthy of attention in his outspoken remarks about free dinners to poor children and kindly but sometimes careless dispensation of free boots, and other help in kind. "The gradual breaking down of character by the expectation of help, whether private or from the rates, is becoming a national danger," he says roundly. Lastly, in a review of the organisation of charity, the author shows how we may learn from the Socialist, Individualist, Communist, and Liberal, but the Socialist who merely insists on his rights is as odious as the Individualist who is merely selfish. Mr. Rogers has a wide knowledge of his subject, and his book will be of value and

will give ideas to all who are interested in, and work with and for, "the poor." The gist of the matter is that "the cure of distress lies in character, in the character of the workers, in the character of those in distress."

MISCELLANEOUS VOLUMES.

THOSE who desire to enter on the study of eugenics—the consideration from a biological point of view of problems concerning social organisation, population, and the future welfare of the race—would do well to take their first steps under the guidance of *An Introduction to Eugenics*, by WILLIAM CECIL DAMPIER WHETHAM, M.A., F.R.S., and his Wife, CATHERINE DURNING WHETHAM (Cambridge: Bowes and Bowes; London: Macmillan and Co., Limited; Glasgow: James Maclehose and Sons. 1912. Pp. 66. Price 1*s*. net). The authors rightly say that "as in all branches of science, a knowledge of the range and methods involved in the inquiry is the first requisite to a clear understanding of the subject." This admirably concise yet explicit little pamphlet briefly unfolds the history of eugenics, discusses racial qualities, describes the methods of research, and examines the construction of society. The appendix and bibliography deserve special praise; the latter consists of no mere string of books and articles, but points out briefly the scope and character of some of the principal works by eminent authors bearing directly or indirectly on the subject.—Those interested in witchcraft, possession, spectres, and such-like ghosts that, despite the exorcism of latter-day civilisation and knowledge, decline to be altogether laid, may possibly be interested by two recent books. In *Demoniacal Obsession and Possession as Causes of Insanity* (London: The Ambrose Company, Limited. 1911. Pp. 51. Price 1*s*. net), Mr. C. WILLIAMS, L.R.C.S., L.R.C.P. Edin., essays in 51 pages to prove that demoniacal possession is a fact, and that it is manifested in certain kinds of insanity, of which it is the cause. He bases his belief in the reality of possession on the assertions that the Christian religion teaches us to expect it and that he has *seen* it (author's italics).—Dr. J. MAXWELL WOOD, in *Witchcraft and Superstitious Record in the South-Western District of Scotland* (Dumfries: J. Maxwell and Son. 1911. Pp. 355), recounts the results of his gleanings on witchcraft, fairy-lore, death-warnings, funeral ceremony, and ghost story, from Dumfriesshire and Galloway, without attempting to subject them to higher analysis or criticism, as adequately presenting "a truer aspect and reflection of the influence of superstition upon the social life of those older days." The book is a distinct addition to Scottish folk-lore.—The mental wanderings of souls unfettered by the shackles of time or space are recounted by Mr. G. M. IRVINE in his book *In the Valley of Vision* (London: Simpkin, Marshall, Hamilton, Kent and Co., Limited. 1911. Pp. 155. Price 2*s*. 6*d*. net). "Dr. Semel Bis" having acquired the art of telepathically reading these flights of fancy in his patients "when in a critical condition as the result of acute disease," records them in a manner that somewhat ingeniously illustrates the determination given to delirium by the problems, pursuits, or natural characteristics of the subject. Morals, philosophy, and fantasy are intermingled in a kaleidoscopic phantasmagoria.—"*Truth*" *Cautionary List for 1912* (London: *Truth* Publishing Co. Pp. 124. Price 1*s*., by post 1*s* 2*d*.) continues its knight-errant career as a protector of the gullible public. Pp. 44–52 of this issue are devoted to comment on certain alleged medical quackeries. Perhaps the most inherently vicious of these are certain advertised cures for drug habits which surreptitiously supply the bane under cover of providing an antidote.

JOURNALS AND MAGAZINES.

The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., F.R.S. Vol. XLIII., No. 5. Dec. 22nd, 1911. London: C. F. Clay, Cambridge University Press. Price 4*s*.—G. C. Mathison (Beit Memorial Research Fellow), working under the direct guidance of Mr. Barcroft, of Cambridge, has investigated "The Influence of Acids upon the Reduction of Arterial Blood." That organic acids, such as lactic acid, are present in the blood in asphyxia and after violent exercises has been abundantly established. Lactic acid occurs in the tissues in conditions of deficient oxidation, and the importance of organic acid in tissue respiration is acknowledged. This research follows the lines already so successfully laid down by Mr. Barcroft. Blood completely saturated with oxygen is exposed to an atmosphere of nitrogen, either by an aerotonometric method or by bubbling a stream of nitrogen through a quantity of blood. A simple method was ultimately devised whereby from 3 to 5 c.c. suffice to test quantitatively the rate of reduction of arterial blood by the passage of a current of nitrogen. Lactic, acetic, formic, carbonic, hydrochloric, and sulphuric acids hasten the rate at which arterial blood gives up its oxygen at low tensions. The accelerating effect of carbon dioxide and other substances is mainly due to the change in hydrogen ion concentration produced by them. The next paper, by Soroku Oinuma, on the "Relative Rates of Oxidation and Reduction of Blood," continues the study of the gases of the blood as devised in the Cambridge School. The rate of reduction of blood is greatly increased, and the rate of oxidation somewhat retarded, by a rise of temperature. The rate of oxidation of blood by alveolar air is about twice that of a similar mixture containing half the quantity of oxygen. The contribution by D. H. de Souza on "Protection of Trypsin from Destruction by Heat" occupies about five pages, and deals with the question from a laboratory point of view. A. V. Hill deals with the "Total Energy Exchanges of Intact Cold-blooded Animals at Rest." He used four types of cold-blooded animals—viz., frogs, newts, worms, and snakes. In the summary of results confirmation is obtained of a fact already well known, that the animal "regulates its own metabolism" independent of the O_2 tension. He further finds that "the heat production of men and big animals is probably not due to a special mechanism, but is merely a direct consequence of the activities of living cells." The next communication, by Casimir Funk, on the "Chemical Nature of the Substance which Cures Polyneuritis in Birds Induced by a Diet of Polished Rice," occupies six pages, and is from the Lister Institute. Its author starts from the statements of several observers that the cortical layers of rice contain a substance which cures both the beri-beri in man and the polyneuritis which is produced in birds by feeding them on polished rice. The author carried out his experiments on pigeons with a view to determine the nature of the "curative substance." Physiological chemists will be interested in the details of the author's methods. It appears that the polyneuritis of birds is due to lack of an "essential substance" in their diet—a substance which is absent in polished rice and is contained in rice polishings.[1] The curative dose of the active substance is small. The following are some of the titles in the Proceedings of the Physiological Society, Nov. 18th, 1911: F. H. A. Marshall, On the Ovarian Factor concerned in the Recurrence of Œstrus; A. R. Mines, Interpretation of the "Protective Action" of Gelatine on Colloidal Gold; A. F. Stanley Kent, The Influence of Salts upon the Action of Rennet on Milk.

[1] THE LANCET, Nov. 4th, 1911, p. 1266.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 24, 1912.

The National Insurance Act.

WE publish elsewhere an account of the meeting of the Representatives of the British Medical Association, which took place in the Guildhall, London, on Tuesday, Wednesday, and Thursday last. The meeting was held with the object of considering the report of the Council of the Association on the relations of the medical profession to the National Insurance Act, in which report the Council made the recommendations which will be found printed in full in THE LANCET of Feb. 3rd, p. 335, and which have also appeared in publications of the British Medical Association, as well as in the lay press. The recommendations of the Council, it will be remembered, asked for instructions to press upon the Government the necessity of further conditions to secure the requirements of the profession, and to notify the Insurance Commissioners that no negotiations will be entered into with any Insurance Committee until the Representatives are satisfied; to submit a report upon the regulations when issued by the Insurance Commissioners; to make certain arrangements for appointing provisional medical committees in every insurance area; to take steps against the possibility of medical attendance being obtained at inadequate rates; and to appoint a new State Sickness Insurance Committee to consider and report to the Council on all matters connected with the Act. This represents the pith of the recommendations. The Council, to put it briefly, asked the constituencies, through their delegates, to work the Act on the understanding that the medical profession was secured by further provisions against the many risks and possible wrongs which have been so freely pointed out during the last eight months. The Representatives, however, as was confidently expected, decided that the report of the Council seemed to put too favourable a construction upon the Act. The net result of the meeting is that the recommendations of the Council of the British Medical Association have been considerably strengthened, and that the Association has declared that it will call upon the profession not to work the Act unless the minimum demands of the profession are effectually and permanently embodied by the Commissioners in the Regulations, with a view to their subsequent incorporation in an amending Act. Although motions to break off all negotiations, and to demand an immediate amending Act, were lost, yet the reform party of the British Medical Association and the National Medical Union at this meeting of Representatives made good their views to a considerable degree. Moreover, the two opposing sections within the Representative Body managed to sink their differences, and by mutual concessions gave a unanimous vote upon the above vital declaration of policy. We regard this as a really hopeful sign of approaching unity in purpose and in action within the ranks of the profession, and we are glad to think that the demand for Regulations containing definite guarantees was first proposed in the columns of THE LANCET. The next step should be taken by Mr. LLOYD GEORGE and the Insurance Commissioners. It remains to be seen whether in the circumstances now created the Chancellor will realise the necessity of coming to an understanding with the medical profession.

Epidemic Poliomyelitis.

THE Local Government Board issued last week a volume of Reports and Papers on Epidemic Poliomyelitis, prefaced by an introduction by Dr. A. NEWSHOLME, which promises to be of great utility to those concerned with the disease in its various aspects in this country. The volume comprises a summary, prepared by Dr. HUGH A. MACEWEN, a digest of whose contents we published last week, of the principal facts which have been recorded in the extensive literature of the subject in Sweden, the United States, and other countries where poliomyelitis has been epidemic on a wide scale during recent years, and a review by Dr. M. H. GORDON of the results obtained to date by Professor LEVADITI and other workers in foreign laboratories who have investigated the virus of poliomyelitis and its experimental transmission from man to animals and from animals to animal. It also sets out the results of inquiries made for the Local Government Board by Dr. R. A. FARRAR in the Midlands and in Dorsetshire in 1910, and by Dr. R. J. REECE in Devon and Cornwall in 1911. Dr. REECE'S report establishes the fact that the disease not only showed a considerable prevalence in one or two places, especially Holsworthy, but that cases, singly or in small groups, were scattered widely over both counties. It is probable that if any other part of England had been as systematically worked last summer a very similar result would have been obtained. Dr. REECE'S inquiries have also confirmed the foreign experience that poliomyelitis occurs to a disproportionate extent in remote country places and isolated dwellings, and as a result of his painstaking investigations it can be said that epidemiological considerations similar to those frequently ascertained in Sweden and America also arise in this country and equally await explanation. Dr. REECE'S paper will be a little disappointing, perhaps, to those who have formed no clear idea of what its scope would be. It does not contribute much new knowledge with regard to the clinical character or the pathology of the disease; while it is guiltless of novel or startling theory. But this should not surprise us. It could hardly be expected that all the circumstances of an epidemic widely spread, not compulsorily notifiable, and often difficult of diagnosis, could be worked out satisfactorily from every point of view by one observer, whatever his practical

experience in the clinical or the epidemiological investigation of this disease; or that such an inquiry should at once place us in advance of other countries, where the disease has been much more extensive and where many observers have had several years of experience and numerous co-workers and assistants in inquiring into epidemics of this nature.

Among the 154 cases reported by Dr. REECE as poliomyelitis in the Devon and Cornwall outbreak are certainly some which from clinical description alone would hardly be accepted as cases of poliomyelitis, undue stress being laid, we think, on certain signs, while little mention is made of others which are of considerable significance. For instance, importance seems in the report to be attached to the presence of Kernig's sign, and yet it is generally regarded as a sign of small diagnostic value. That portion of the report which is concerned with the epidemics at the village of Stoke Rivers is particularly satisfactory from the epidemiological point of view; it has been worked out with the greatest care, and in detail, with the result that there must be considerable doubt whether that epidemic was one of poliomyelitis. What the nature of the poison was which gave rise to the epidemic remains doubtful, and this very fact emphasises the necessity there is for obtaining some clinical test or some serum reaction by which the uncertain and abortive cases of poliomyelitis may be recognised. The report of the epidemic in the Midlands in the summer of 1910, which follows upon Dr. REECE'S report, is of interest, for it shows that cerebro-spinal meningitis and poliomyelitis may, as has always been recognised, coexist; but, as Dr. FARRAR points out, these are two distinct diseases, and their coexistence does not indicate any relationship. In a community in which cerebro-spinal meningitis is a notifiable disease it is certain that from time to time cases of tuberculous and septic meningitis, and also cases of the cerebral form of poliomyelitis, will be notified. The examination of the cerebro-spinal fluid in such cases is essential, for from its cytological and bacteriological characters a correct diagnosis can always be made. The epidemic at Cerne Abbas in Dorset is most instructive, in that it shows the variability of the infectivity of the virus. In this small epidemic of 16 cases, three children were infected in one house; on the other hand, a father contracted the disease and remained in a small cottage with his wife and several children, not one of whom developed the disease. Whether the freedom from infection in this latter family can be attributed to the use of permanganate of potash gargle must remain doubtful; but it is certainly a simple and harmless preventive measure.

It is to be hoped that the Local Government Board will regard the report now presented as a preliminary one, and will make arrangements as suggested in the preface by its chief medical officer for "further research both in the laboratory and by exact and painstaking inquiry into the circumstances of local outbreaks," so that any outbreaks of poliomyelitis which may occur during the coming summer may be thoroughly examined from every point of view. The lines on which further investigation should be carried out will have to be carefully thought out. The report of the Local Government Board has indicated one important line of investigation—viz., the possible relation of certain forms of illness in domestic animals with poliomyelitis. The experimental work of Dr. H. K. MARKS (to which Dr. F. E. BATTEN called attention in our columns last week, in the course of a lecture upon experimental poliomyelitis) has shown that rabbits injected with the virus of poliomyelitis often die suddenly from a disease which bears no clinical resemblance to poliomyelitis, but which, when again communicated to a monkey, reproduces the disease in its typical form. The Local Government Board may be congratulated on obtaining the assistance of Professor LEVADITI, of Paris, in carrying out its experimental investigations in the transference of the English virus to monkeys, but it is natural to wish that an English bacteriologist had been able to undertake the work. The more do we feel this because in future investigations of this disease it will be essential that the experimental work be carried on in this country.

The Teaching of Anatomy.

AT a recent meeting of the Southwark board of guardians, briefly reported in our issue of Feb. 10th, it was resolved that in future no unclaimed bodies of paupers should be sent to the schools of anatomy for dissection, and though a letter was read from Mr. F. G. PARSONS, the lecturer on anatomy at St. Thomas's Hospital, pointing out the importance of a knowledge of anatomy to medical students, the board decided to adhere to its resolution, one of its members adding that he was glad to learn that other boards of guardians, especially in the North of England, were following their example. We have only to say that if other boards of guardians are found in any quantity to subscribe to the views of the Southwark board a fatal blow at medical progress will be struck.

An adequate knowledge of anatomy can be obtained only by dissection. This must be the starting-point of any discussion on the question whether boards of guardians should grant for the study of anatomy or withhold the unclaimed bodies of paupers. On this point all who are acquainted with the position will agree; every teacher of anatomy or surgery, everyone who has to instruct students of medicine, must acknowledge that without a knowledge of anatomy it is not possible for the medical student to be adequately equipped. It is only by dissection, by seeing the tissues of the body in their natural positions, and in their relation to one another, that a student is enabled to learn, and learn thoroughly, the structure of that with which he has to deal afterwards when he practises his profession. Without an adequate knowledge of anatomy the medical practitioner will always be at sea; he will feel that he is not sure of the formation of the part which he is examining, and as a result both his powers of diagnosis and of treatment will be greatly impaired. His diagnosis will be faulty because he will be unable to appreciate the relation which the anatomy of the part concerned has with the symptoms manifested; his lack of knowledge will interfere seriously with his powers of treatment, especially with his capacity for operating, and either from fear of doing harm he will not venture upon

what is required, or, if his lack of knowledge fail to restrain his hand, he may inflict irreparable damage. It is incontrovertible that there is nothing more essential for the basis of the knowledge of the student of medicine than a real familiarity with the anatomy of the human body, and it may reasonably be asked what substitutes have been suggested for dissection. The use of plates, illustrations, and models may assist in perfecting the student's knowledge of anatomy, but it can never replace dissection. The anatomical knowledge obtained from books and plates may suffice for the passing of some of the less severe examinations in anatomy, but it will not serve for the practice of medicine and surgery. The skilled examiner can always distinguish between the student who has learned his anatomy from books and the student who has gained his knowledge from dissection. Those who oppose the use of the unclaimed bodies of paupers for dissection must either believe that a knowledge of anatomy is unimportant for the practice of medicine, or that a knowledge of the subject can be obtained in some other way. There is no method save dissection of obtaining a satisfactory knowledge of anatomy.

The feeling of sentiment that impels a board of guardians to refuse to allow the unclaimed bodies to be used for the teaching of anatomy is perfectly natural; they feel that as no friends or relatives are there to see that the bodies of these poor people are given decent burial, it behoves them as the trustees for the poor to see to it. They are possibly ignorant of the fact that all bodies sent to the medical schools are buried in consecrated ground with all due religious rites, and that the process of dissection has merely anticipated the normal effects of putrefaction without its horrible accompaniments, since the bodies are preserved with the strongest antiseptics. We cannot help thinking that if guardians knew how very essential it is that students should dissect, they would not allow a sentiment for the dead, however laudable, to override the needs of the living. No stigma attaches to the dissected body. At one time it was different, for it was part of the sentence on some criminals that when they had been hanged their bodies were to be handed over to the surgeons for dissection; so that ignominy attached to dissection. When, however, the Anatomy Act was passed in 1832, in order that this slur should be taken away, it was enacted that in future the bodies of executed criminals should not be dissected. The horrors of "body-snatching" were entirely due to the difficulties intentionally cast in the way of the supply of bodies for dissection. The examining authorities require a knowledge of anatomy which can be gained only by dissection; these examinations must be passed by anyone who wishes to practise medicine; it is clearly, therefore, the duty of the State to see that the schools of medicine are provided with sufficient bodies for the teaching of anatomy. In most of the provincial schools of medicine the difficulty is not so keenly felt, partly because the guardians seem more ready to recognise that dissection is essential for the due teaching of anatomy, and partly because the requirements are not so great as in London, where more medical students are to be found and where more examinations are held. A solution of the difficulty must be discovered. The simplest method of solving the difficulty would be to take from the boards of guardians the right of deciding what should be done with the unclaimed bodies of paupers; this would relieve the guardians of the expense of burying these unclaimed bodies, and would enable the schools of medicine to carry on their work efficiently. It has been suggested that it might be possible to import the bodies required, but the expenses would certainly be greatly increased. Whatever solution may suggest itself to those in authority, one thing at least is clear, something must be done to supply sufficient bodies for the instruction of our future physicians and surgeons. Many of those who are most bitterly opposed to the anatomical use of unclaimed bodies would be the first to complain if a medical man were to make a mistake in the diagnosis or treatment of themselves or their relatives, from a want of knowledge of anatomy.

Annotations.

"Ne quid nimis."

THE COAL STRIKE AND THE SANITARY SERVICES.

NEVER before probably in the history of this country has it been so sternly and acutely realised by us all to what an extent the great systems of our modern life depend upon our regular supply of coal. During the last fortnight the community has been aroused to the fact that a coal strike may quite possibly take place, and that the inadequate heating and lighting of our homes are absolutely trivial matters compared with the real terrors of such a ghastly disaster. Look at this one thing only—a prolonged coal famine would bring our principal sanitary schemes to a standstill. The splendid efficiency of our public health administration will be threatened with complete defeat if the supply of coal be discontinued. Our great schemes of water-supply and sewage disposal, for example, would fail, and such failures would bring disease and death in their train. Our water and sewage mains without the steam pumps would become an arterial system with a non-beating heart. When the railway strike assumed for a time a serious position last summer, it was reported that fears were entertained that the distribution of water in the metropolitan area was within sight of being stopped, as coal could not be got quickly enough to keep the engines of the great water pumps going. There was threatened a shortage because the means of communication between the colliery and the pumping stations were shut off, but fortunately a long strike was averted and a serious situation saved. It is to be hoped that again counsels of peace may prevail, though it is obvious that the struggle upon which the miners and coal-owners are engaged is a vastly greater one than that which so sadly affected the comfort of holiday-makers last year. It is difficult to think of any department of life that will escape catastrophe if a hard, determined policy of war is persisted in. The damage to the industrial interests of the country will of course be enormous. Misery or starvation will be experienced by thousands. But over and above this stands in our mind the risk that a great injury may be inflicted upon the public health machinery of the country which will take a weary time to repair. It is clear that a prolonged coal strike must mean a compulsory falling away from our present high sanitary standard, the maintenance of which is responsible for the splendid health statistics of the country. For that reason alone we may well pray for peace.

ANTIVACCINATION AND THE ENCYCLOPÆDIA BRITANNICA.

IN THE LANCET of Nov. 25th, 1911, we reviewed the article on Vaccination by Dr. S. Monckton Copeman in the new edition of the Encyclopædia Britannica. A "Reply"[1] to Dr. Copeman's article has been issued in pamphlet form from the headquarters of the antivaccinationists. It consists, for the most part, of the usual denials of everything that is well established to all except those who will not see. Naturally space is too valuable to keep on repeating the same categorical denial of "facts" which are not facts, but there are three points in the pamphlet which may be worth some comment. 1. After an ineffectual attempt to disprove the identity of small-pox with cow-pox, it is stated that "if the non-identity of cow-pox with small-pox is established, the alleged scientific basis of vaccination is at once exploded, as there is no evidence that one infectious disease is capable of setting up immunity against another." But the professional estimate of the value of vaccination is based on logical reasoning from observed facts, and not on any theory whatever as to how it works, though, of course, the settlement of that question is highly desirable. Further, to assert that there is no other known case in which one infectious disease is capable of setting up immunity against another would be, even if true, of no value as an argument that this particular disease does not do so, unless the assertion that it does were based on the theory that all infectious diseases do produce immunity against other infectious diseases—a foolish proposition which no one has made. Again, the author of the pamphlet adduces as evidence against the identity of the two diseases, the assertions that inoculation of small-pox into a cow does not produce cow-pox, that small-pox causes a general eruption, while cow-pox causes only a local eruption, and that small-pox is spread by infection as well as by contagion, while cow-pox is spread by contagion only. Yet in the face of these assertions he considers it "safe to say that there is little, if any, 'cow-pox' lymph in use to-day," because "small-pox virus, cultivated through a series of calves, is now the favourite brand." Now, if small-pox does not produce cow-pox in a cow, what does it produce? For the condition induced in human beings by the lymph derived from "small-pox virus, cultivated through a series of calves," does not produce a general eruption but only a local one, and the condition in calves thus induced is not infectious to human beings, but must be inoculated to produce any result at all. As a matter of fact, the results of vaccination, whether, as formerly, from undoubted spontaneous cow-pox, or as (asserted in the pamphlet) at present from small-pox cultivated through a series of calves, has the same visible results—viz., a local eruption never communicated except by inoculation. 2. It is further stated that "the assumption that vaccination mitigates small-pox is absurd in theory and untrue in fact, for no one can possibly tell theoretically whether vaccinated persons who contract small-pox would have suffered more or less severely had they not been vaccinated." In any given instance that is true; but when it is found by comparison that the cases of severe small-pox occurring in vaccinated persons form a negligible fraction per hundreds of thousands of vaccinations, while the cases of severe small-pox in unvaccinated persons have a heavy percentage, it is only a reasonable assumption based on the doctrine of chances that the vaccinated patient would have suffered more severely if he had not been vaccinated. 3. Not vaccination but improved sanitation, we are told, is responsible for the improvement in small-pox incidence and mortality. Now, in the nature of things it takes time to convert insanitary conditions into sanitary ones, while the beneficial effect of vaccination, if any, we should expect to demonstrate itself promptly. When Porto Rico came under United States occupation in 1898 small-pox was endemic there and sanitation was not good. In December, 1898, small-pox assumed such a severe epidemic form in that island that 16 out of 71 municipalities showed 3000 cases in two months. On Jan. 27th, 1899, it was ordained that "every resident who has not had this disease will be vaccinated, and hereafter all infants must be vaccinated before reaching the age of six months." By June 30th, 1899, 790,000 persons had been vaccinated, not a death attributable to vaccination had occurred, and the only accidents were "a few infected arms." On Oct. 20th, 1899, it was officially reported that "not a single case of small-pox is known to either the military or the civil authorities, and it may be considered stamped out of Porto Rico." It has never gained a foothold there since. A similar, but if anything more remarkable, experience was afforded a year or two later in the Philippines.

[1] Vaccination Pros and Cons. A Reply to Dr. Monckton Copeman's Article on Vaccination in the eleventh edition of the Encyclopædia Britannica. By the Editor of the Vaccination Enquirer. Price 2d., post free 2½d.

THE DREAM OF ANTHROPOLOGY.

It has always been a dream of the anthropologist—a dream the realisation of which would prove one of the romances of science—that from an examination of the skull it should be possible for one versed in the study to reconstruct faithfully the features which characterised the individual the bones of whose head and face are preserved. The fascination of such an ideal is so great that it must strike anyone as curious that those whose business it is to handle skulls have been contented with stereotyped measurements and indices which seem to tell so little about the living individual. As a matter of fact, these seemingly sterile methods do not represent the true limits of anthropology, for it is certain that in the review of any skull the anthropologist sees far more of the living man than the mere collection of measurements and indices, with which he is forced to describe it, would suggest. The truth is that every anthropologist has his dreams; that some portion of his dreams he can realise, but that for want of a better method of expressing himself he resorts to the compilation of tables and indices, with which he is probably by no means contented. What he has seen in the skull is, alas, not represented in his tables, and no one who chances to wade through his records can ever build again that picture of the living individual or even of the skull from which it arose. Gropings after graphic methods are always being made, methods by which, at any rate, a skull contour may be reconstructed from data recorded by the observer; but more than this is wanted to fulfil the dream of anthropology, for a reconstruction of the actual features of the living individual is the climax aimed at. From time to time the question has attracted attention from a wider circle than that of the professed anthropologists, for the skulls reputed to belong to various great men have at times come under examination for the purpose of deciding either their authenticity or the fidelity of disputed portraits said to depict the living man. The skull said to be that of Dante was examined in 1867 by Welcker, and from its general similarity to the poet's death-mask it was judged to be genuine. The death-masks, the portraits, and the reputed skull of Schiller have also furnished material for an exhaustive study by the same authority. Raphael and Bach have in their turn provided problems for the anthropologist. Sophocles has also come under review, for a skull reputed to be his was examined by Professor His in 1893. The remains of other celebrities have been brought to light and paraded before the public from time to time. The disputed head of Cromwell attracted attention not long ago, and suggestions have been made of late

that the famous curse should be braved, and Shakespeare's remains be dragged from the grave in order to determine which of his portraits is genuine. Authorities differ as to the extent to which reliance may be placed upon the verdict that a particular skull accords so well with a particular portrait that therefore the bones must be actually those of the individual depicted. Still more doubt has been cast upon the value of attempts to reverse the process and reconstruct the portrait from the skull. So much that lends every distinctive feature to a face would seem to leave no trace upon the contours of the skull bones. The eyes, the lips, the nose have in all their most characteristic parts so little connexion with the bones that it is too much to expect that a faithful likeness could be reproduced. And yet something may be done. The artist's reconstruction of the features of an Australian native upon a skull handed to him by Merkel gives clear evidence that broad racial characters may be brought out with some distinctness upon a face modelled from the skull. It is possible that something more than this may be arrived at by a long series of comparisons of the features of actual individuals with the characters of their skulls, and by a systematic study of the average thickness of the tissues overlying every part of the skull bones. An excellent contribution towards this study has recently been made by Professor H. von Eggeling ("Physiognomie und Schädel"), and in his paper the writer gives a valuable account of what has so far been accomplished and what may yet be done. Professor von Eggeling has done his best to realise the dream of anthropology.

KALA-AZAR AND THE BED-BUG.

That certain human diseases are spread through the instrumentality of biting insects has been proved over and over again, and the number of such instances is gradually increasing. The latest addition to the list would appear to be the association of the bed-bug with the propagation of kala-azar (black fever) in India. In THE LANCET of Feb. 17th we briefly referred to the announcement which Surgeon-General W. B. Bannerman, I.M.S., has made to Sir Ronald Ross, that Captain W. S. Patton, I.M.S., had discovered the complete development of the parasite of kala-azar in the Indian and European bed-bugs. As the form of this disease met with in India is the most serious of the three known forms of illness due to Leishmania, it is obvious that the discovery of the life-cycle of the protozoal parasite in an insect which infests many Indian homes will clear away at once much of the doubt and difficulty which have hitherto surrounded our knowledge of the precise manner in which the disease is spread, and how it may therefore be prevented. For some time the Indian bed-bug has been under suspicion as the transmitting agent, but no sufficient evidence had been obtained to establish the charge. Captain Patton, now assistant director of the King Institute, Madras, sharing the views held by Major L. Rogers, I.M.S., who has already done much solid work towards the elucidation of the etiology of this disease, has been directing his investigations to the connexion between the bed-bug and kala-azar. He had already shown [1] that the parasite's life-cycle consisted of three stages —pre-flagellate, flagellate, and post-flagellate. The flagellate stage was said to be found in the mid gut of the Indian bed-bug, Cimex rotundatus, and the post-flagellate in the rectum, where the parasites became encysted and were finally passed out with the fæces, being liable, it was conjectured, to be ingested by the larvæ or nymphs. But it may be mentioned that Sir Patrick Manson has pointed out that the supposition that the infection took place by an animal feeding on the excreta of its own species was contrary to the usual course of nature. It was also believed that the parasite, in order to reach man, must revert to its non-flagellate stage, and that this change most likely took place in the bed-bug somewhere in the neighbourhood of its biting apparatus. It had been shown experimentally by Captain Patton that the Indian bed-bug could become infected by feeding on the blood of a kala-azar patient. But the final stages of the development of the parasite and the method of its re-entry into the human body could not be determined. The difficulties connected with proof of the insect transmission of flagellated protozoal organisms are notorious, and experimental research in this direction is acknowledged by experts as being far from easy. The natural parasites of the suspected insect, for example, would need careful study, and there might be difficulty in determining whether any parasites found in the bug were developmental forms of leishmania or were, on the other hand, flagellates of another kind altogether. It is therefore the more satisfactory now to learn that in spite of all the great difficulties which had to be encountered Captain Patton has succeeded at last in discovering the complete life-cycle of leishmania donovani in the body of the bed-bug. We assume that this discovery brings with it the knowledge that the bug is not only a potential agent, but that it is the usual transmitter of the infection to man. The practical application of this knowledge to the formulation of preventive measures naturally follows. Indeed, this view has already been acted upon with advantage in some parts of India, bug-infested huts in which cases of kala-azar had been reported having been destroyed by burning, and the human inmates removed to new homes erected on fresh sites. This incrimination of the bed-bug by Captain Patton affords another instance of the importance of cleanliness in dwellings, and the need for waging constant warfare against biting insects, more particularly on those which rely upon man for their sustenance. As we have before pointed out in these columns, it cannot be too often urged that the prevention of many diseases depends primarily upon the condition of the home, and that cleanliness of interiors avails much in the struggle against infection. We shall look forward with much interest to seeing the full details of Captain Patton's important investigations, and we trust that their publication will not long be delayed.

[1] Vide THE LANCET, Jan. 30th, 1909, p. 306.

THE DIETARY OF THE ELIZABETHANS.

A LITTLE-KNOWN work is Thomas Moffet's "Health's Improvement," which deals with the choice and preparation of food in Elizabethan England. It is just to note that our ancestors, often accounted gluttons, held nice views on the subject of diet, ate many viands now discarded, and based their opinions of their bill of fare on the writings of Galen, Cardanus, and like authorities. The Elizabethan ate his meat in an eclectic and philosophic spirit. "I affirm with Galen," exclaims Moffet, "that a fat and young heifer, kept up a while with dry meat, will prove a convenient, temperate, and good nourishment, especially if it be killed after the French fashion, as I saw the Norman butchers kill them in our camp whilst I lay there in camp with that flower of chivalry, the Earl of Essex." The Normans, it appears, inflated the carcass of the cow with wind and then beat it till the meat grew tender, as is now done in the case of veal. Bull beef is said by this same writer to be a fit food for strong stomachs, but only after the bull has been baited and has died in battle. "Mutton is generally commended of all physicians." The flesh of the old he-goat is not to be eaten "till he hath been baited like a bull to death, and when he is dead, you must beat the flesh in the skin after the French fashion of beating a cow." "No brawn,

pork, or bacon should be eaten without wine." A certain prejudice seems to have existed against the flesh of red and fallow deer as being too dry and cold. In that age of humoralistic medical theory all food is, indeed, judged according to a fictitious standard. Some meats are held to be heating, others are watery, and the choleric must not eat of the former or the weakly of the latter kind. The list of birds that came to table in the days of Shakespeare is enough to stagger the Wild Birds Preservation Society. Thus, robin redbreasts are esteemed "a light and good meat," and all the little song-birds are mentioned as edible. The jay has a bad name. He suffers from falling sickness and conveys it to others. The sparrow has an aphrodisiac effect; the wag-tail is conducive to the shaking palsy; the wren is hostile to stranguary and the stone; the cuckoo is "hot and leprous." Fishes, especially the fresh-water kinds, are recommended on much the same grounds as birds. Loches are good for women in childbed; the liver of the whale is said to smell like violets and to taste most pleasantly. Lampreys are very sweet and nourishing, but they tempt men to surfeit. "How ill they are even for strong stomachs, and how easily a man may surfeit on them, not only the death of King Henry I. but also of many brave men and captains, may sufficiently demonstrate." Caviare, under the name of cavialy, is praised, but an Italian proverb is quoted—

"Chi mangia di Caviale
Mangia moschi, merdi, e sale.

This is not civil. It is curious that the taste for caviare survives while that for lampreys has disappeared. Dr. Thomas Moffet was a fine specimen of the physician of his age. A person of many accomplishments, a courtier, and traveller, he ranks as one of the worthies of Caius College and Trinity College, Cambridge. His curious book retained such influence that it was reprinted as a serious contribution to knowledge as lately as 1746.

ARTIFICIAL HYPOSPADIAS FOR INTRACTABLE URETHRAL STRICTURE.

IN the *Australian Medical Journal* of Dec. 23rd, 1911, Mr. R. Hamilton Russell has described an ingenious operation for the relief of intractable urethral stricture. He conceived the project of producing artificial hypospadias and subsequently operating for its relief, making a new urethra independent of the stricture. A man, aged 44 years, was admitted to hospital with complete retention of urine accompanied by uræmic symptoms. Some four years previously he had undergone perineal section, but had gone up the country, with the result that his urethra was neglected. Artificial hypospadias was performed, and so great was the relief and so inconsiderable the inconvenience involved that he declined any further operation. The procedure is very simple. The scrotum is first divided longitudinally throughout along the median raphé until the corpus spongiosum is exposed. The opening will be diamond-shaped when the testes are drawn to either side. Each half of the scrotum is sewn up with horsehair applied antero-posteriorly, commencing at the outer angles of the diamond and continued inwards towards the middle line as far as convenient, so that each testis is sewn up in a separate bag. A director is now passed into the urethra, which is opened a little in front of the scrotum. The urethal incision is carried backwards into the perineum past the strictured portion. The whole length of the incised urethra is stitched on either side to the skin, whether of the penis, scrotum, or perineum. In this way a condition closely simulating perineo-scrotal hypospadias is produced, the differences being that the anterior portion of the urethra is not laid open and the penis and glans are mobile and free. The operation is completed by tying in a rubber catheter through the perineal wound and applying a simple dressing of gauze and wool. The scrotal sutures should not be removed for 10 days. In a second case a man, aged 80 years, had suffered from intractable stricture for 40 years. One day he suddenly became comatose and his medical attendant aspirated the distended bladder as he could not pass a catheter. After 12 hours consciousness returned. Next an attempt to pass the stricture under chloroform failed. The membranous urethra was opened through the perineum and a rubber catheter passed into the bladder (Cock's operation). Several ounces of very foul urine and pus were evacuated and the bladder irrigated. A week later the operation described above was performed, with the result that the trouble which had rendered life a burden for 40 years was removed. Washing out the bladder was then a simple matter. At first it would not tolerate more than 4 ounces of urine, but within a fortnight it could take 18 ounces comfortably. The drawbacks to the operation are loss of procreative power and having to perform micturition in the feminine fashion. Neither of these is serious in men who have reached or passed middle age. They are trivial in comparison with the troubles relieved. Sexual power would doubtless be unimpaired. It might be suggested that the making of a permanent urethral fistula would do equally well without dividing so much of the urethra, but Mr. Russell does not think so, and believes that the division of the scrotum adds greatly to the comfort and facility with which micturition can be performed. He also suggests that in traumatic stricture involving the membranous urethra the operation may be useful. Although it would not be possible to get behind the stricture, the difficulty in managing it experienced through the urethra would be much diminished in dealing with it at close quarters through the perineum.

THE MINERAL WATERS OF ESSEX.

AN interesting contribution has been added to the Essex Field Club Memoirs in the form of a history of the mineral waters and medicinal springs of that county by Mr. Miller Christy, F.L.S., and Miss May Thresh. It appears that in Essex there are a considerable number of springs which have been in the past valued for medicinal purposes and visited more or less extensively by persons who regarded these waters to have curative properties. Altogether, we gather, rather more than a score of such wells attained at one time a certain measure of fame. The well at Wanstead became known at the very beginning of the seventeenth century. Some eight others—Witham, South Weald, Upminster, Little Leighs, Felstead or Little Dunmow, Mark's Hall, Woodham Ferrers, and Colchester—were known and used at least as early as the end of the seventeenth century. About a dozen others (namely, those at Woodford, West Tilbury, Havering, Chigwell Row, Wethersfield, Gidea Hall, Hornchurch, Stapleford Abbotts, Springfield, Twinstead, Plaistow, and Ilford) appear to have been discovered during the eighteenth century, while only two—Hockley and Dovercourt—became known during the nineteenth century. The wells containing an important quantity of salines were at South Weald and Upminster, which provided chiefly the sulphates of magnesium, calcium, and sodium; Hockley water was a bitter magnesium water. The rest appear to have attracted attention through their chalybeate properties. At Dovercourt an attempt was made to establish a regular spa about 50 years ago, and a spa-house exists there to-day. At Hockley a spa was established and a pump-room built in 1842, but the enterprise failed, for in 1871 it was written that the whole place had "a most dilapidated appearance, the hotel has been let at £10 per annum as a beer-shop, and the unfortunate spa-room is used as a Baptist chapel." In

1893 another attempt was made to develop the spa, but without success, until two or three years ago a builder took the matter in hand, with the result that "the Spa Hotel (a couple of hundred yards distant from the pump and well) on the road from Rayleigh to Rochford, after many years of decadence, is at last a prosperous hostelry, and it is likely to do well now that the exceptionally picturesque district around Hockley is developing rapidly as a residential district." The water contains as its chief constituents, according to Miss Thresh, 197·3 parts per 100,000 of magnesium sulphate, 95·9 parts of calcium sulphate, 95 parts of sodium chloride, and 39·7 parts of calcium carbonate. It acts as a gentle aperient, and shows a composition which, if the spring had been on the continent, would have attracted a *clientèle* long ago.

ACUTE DILATATION OF THE STOMACH IN PNEUMONIA.

ACUTE dilatation of the stomach is a rare condition which has attracted increased attention in recent years. Upwards of 200 cases have now been recorded. Its pathogenesis is somewhat obscure. It may occur without obvious cause in an apparently healthy person, in the course of some disease, or after some operation, abdominal or not. In the text-books it is stated to occur sometimes in severe acute or wasting diseases, but it does not appear to be mentioned among the complications of pneumonia. Yet ten years ago in our columns Dr. H. Campbell Thomson published an important paper on acute dilatation of the stomach, in which he reported one case in which it occurred in pneumonia,[1] and Dr. Charles R. Box and Mr. Cuthbert S. Wallace reported a second case.[2] A paper in the *American Journal of Medical Sciences* for December, 1911, by Professor M. H. Fussell tends to show that acute dilatation of the stomach is not such a rare complication of pneumonia as might be supposed. The connexion first attracted his attention in July, 1910, since which date he has seen three other cases, and on searching his notes he found a fifth case, observed in 1904, in which the connexion with pneumonia was not recognised at the time. The following are some examples. A youth, aged 20 years, was attacked with severe pneumonia involving first the right lung and then the left until only the right upper lobe appeared to be in use, though there was some resolution at the right base. The temperature ranged between 103° and 104° F. The pulse was very rapid, frequently reaching 140. Resolution slowly progressed and the temperature fell by lysis. Three days after the temperature had been normal much creamy sour material was suddenly vomited. Professor Fussell saw the patient a few hours later and found the stomach greatly distended. The left hypochondriac and umbilical regions protruded while the right hypochondrium was flat. The outline of the stomach could be seen, and tympany extended almost to the pelvis. The patient was collapsed and the pulse running. Notwithstanding his apparently moribund condition a stomach tube was passed, much liquid was removed, and the stomach was washed out. The protrusion immediately disappeared and the patient was much relieved. Recovery ensued. In a second case the pneumonia was confined to the left lower lobe in a man aged 35 years. On the fourth day the temperature suddenly fell to normal, but it again rose to 102°, and on the sixth day there were symptoms of intestinal obstruction. The abdomen was greatly distended and the bowels could not be got to act by any means. On the seventh day Professor Fussell saw him in consultation and found that the abdominal distension was epigastric and extended 2 inches below the umbilicus, forming a tympanitic tumour. The pulse was rapid, but good. There was complete consolidation of the lower left lobe, which was undergoing resolution. The patient was semi-comatose and delirious, and there was some vomiting. A stomach-tube was introduced and a small amount of sour material was obtained, with much gas. The epigastric tumour immediately disappeared and the abdomen became flaccid. On the next day and on three other occasions the stomach was washed out, and after the fourth washing there was no return of the distension. Eserine and strychnine were given hypodermically and recovery ensued. Professor Fussell has collected from literature six other cases. Analysis of the whole 11 cases shows that 6 were fatal. The dilatation occurred before the crisis in 8, after it in 3. Collapse is reported in 5, diarrhœa in 2, and vomiting in 8. Most of the patients were delirious. In two cases the vomit had a fæcal odour. Constipation was the rule. Frequently the patient was collapsed, with pinched anxious face, sunken eyes, and rapid breathing. The condition must be differentiated from general intestinal distension, peritonitis, and intestinal obstruction. General abdominal distension is common in pneumonia, but the outline of the stomach cannot be made out, the stomach tube will not remove the distension, and frequently a rectal injection will give relief. Moreover, there is no vomiting, and often there is diarrhœa. In general peritonitis there is the same rapid distension as in gastric dilatation, but the outline of the stomach cannot be seen, and the abdomen is tender. In three cases intestinal obstruction was diagnosed. But in it the distension is general, and the passage of the stomach tube will not cause this to disappear. Sudden abdominal distension in pneumonia should suggest acute gastric dilatation. Before the patient is moribund the stomach tube should be passed and lavage performed. This must be repeated as often as the dilatation recurs. The position of the patient is of some importance. If, as is held by some, the cause of the dilatation is constriction of the duodenum under the root of the mesentery, this may be removed by turning the patient on the right side or on the face. Professor Fussell thinks that these pneumonic cases are in favour of some toxic cause affecting the innervation of the stomach. The dilatation so caused may, by traction, produce constriction of the duodenum.

[1] THE LANCET, Oct. 26th, 1901, p. 1113.
[2] Ibid., Nov. 9th, 1901, p. 1259, and July 22nd, 1911, p. 214.

SOME DEVELOPMENTS IN PHARMACEUTICAL RESEARCH.

IN the domain of pharmaceutical research some useful work has been accomplished since the beginning of the present year, evidence of which is to be found in the three papers that were communicated to the February evening meeting of the Pharmaceutical Society in London. In the Pharmacy Research Laboratory of the society Professor H. G. Greenish, joint editor of the forthcoming edition of the British Pharmacopœia, is, with the assistance of Miss D. J. Bartlett, undertaking a series of experiments with the object of drawing the attention of pharmacists to drugs the sophistication of which exists in more than isolated cases. The first report on these investigations deals with powdered gentian, nux vomica, and ipecacuanha, and was the subject of one of the communications in question. Of powdered gentian 33 samples were examined, and 13 failed to comply with the requirements of the Austrian Pharmacopœia as to aqueous extract. The yield of aqueous extract depends not only on the original quality of the root, but also on the treatment to which the root has been subjected, and the test serves to exclude exhausted root, while it excludes definitely highly fermented root. The 13 samples were therefore of poor quality. On the other hand, with five exceptions, the samples

satisfied the ash-limit of the Austrian Pharmacopœia. An examination under the microscope showed that five samples were grossly adulterated, three of them containing an abundance of almond shell; five others also showed evidence of contamination with foreign vegetable substances, and the authors draw the conclusion that "the quality of commercial powdered gentian still leaves much to be desired. Intentional adulteration with foreign vegetable powders still continues. Carelessly cleaned root is ground to powder, and a large proportion of the samples are deficient in water soluble substances." The 11 samples of nux vomica examined gave much more satisfactory results, and the 11 samples of powdered ipecacuanha, with one exception, contained sufficient total alkaloid to comply with the requirements of the Committee of Reference in Pharmacy. The series of investigations promises useful results, and if other drugs are found to be adulterated to the same extent as powdered gentian root valuable caution will be instilled. In another paper read at the same meeting the same authors demonstrated that the frequently repeated statement that black mustard seeds do not always contain sufficient myrosin to decompose all the sinigrin they contain, was incorrect. In two of the samples of black mustard seeds examined there was, in fact, sufficient of the enzyme to decompose a much larger quantity of the glucoside than the seeds themselves contain, while in all the samples there was a sufficiency of myrosin. It therefore follows that the practice of adding white mustard seeds, which contain an excess of the same or a similar enzyme, myrosin, is not necessary to complete the decomposition of the glucoside, although a mixture of the two kinds of seeds may be more palatable than the black seed alone. The third paper consisted of a preliminary report on examinations of asafœtida and oil of asafœtida which have been conducted by Mr. E. F. Harrison and Mr. P. A. W. Self. The authors describe in detail the process employed in investigating the oil, and, since there is good reason to believe that the virtues of asafœtida are chiefly due not merely to the essential oil but to the sulphur-containing constituents of the oil, they draw especial attention to the importance of an accurate determination of the amount of sulphur present. They showed that high percentage of sulphur in the oil goes with high specific gravity, high refractive index, and levorotation, while the lowest percentage of sulphur goes with the lowest specific gravity and refractive index, and dextrorotation. The authors were reluctant to suggest that the figures they obtained established any sort of standard or limit, although the samples were chosen to be as representative as possible; they are inclined to think, however, that when the amount of sulphur in the oil is not under 1·5 per cent. of the real gum resin, there is a *primâ facie* case for regarding the drug as pure. They are continuing their investigations in the hope that the accumulation of further data may lead to results of greater value.

THE PATHOLOGY AND TREATMENT OF TUBERCULOSIS.

IN another column we publish a communication from our correspondent at Budapest with regard to the views held by Dr. Joseph Hollós respecting certain points in the pathology and treatment of tuberculosis. The remarks on latent and masked tuberculosis will doubtless be received with a considerable amount of scepticism by practitioners in this country. Nevertheless we have thought it well to publish them, as they have received some attention from French observers. Certain symptoms are detailed which Dr. Hollós believes are indicative of latent tuberculosis, but similar symptoms occur in so many other conditions that much hesitation will be experienced in accepting Dr. Hollós's contentions that they are due to the "high quality of sensitivity" of the organism against the toxins of tuberculosis. Dr. Hollós also states that patients in the latent stage of tuberculosis respond well to antituberculous treatment. The patients under his care were without exception treated with Spengler's serums—namely, the smaller proportion of them with tuberculin and the larger proportion with the "tuberkulose Immun-Körper" (I.K.). In THE LANCET of Sept. 16th, 1911 (page 838), we made some remarks on this "I.K." treatment for tuberculosis, and after a criticism of the accounts which had been published claiming very favourable results from the employment of the preparation we asked our readers to receive the results of employing "I.K." with reserve for the present. After reading Dr. Hollós's remarks our opinion is not changed, but we should be interested to receive from our readers any personal experience they may have had in treating patients with Dr. Spengler's serums.

THE CANADIAN ROYAL COMMISSION ON TUBERCULOSIS.

WITH the administration of sanatorium benefit under the National Insurance Act in view, the attention of statesmen, Insurance Commissioners, local authorities, and practitioners may be directed advantageously to the report of the Royal Commission on Tuberculosis for the Province of Quebec recently issued. The report presents the problem of the prevention and eradication of tuberculosis in clear, concise, and eminently practical fashion. For ready reference the arrangement of the report is excellent. The body of the report is prefaced by a short summary of six pages which contains the more important conclusions. Following this comes the detailed report with excerpts from the evidence. The Commission consisted of 14 members, and included Dr. E. P. Lachapelle (chairman), Professor J. G. Adami, Dr. Roddick, and Colonel Jeffrey Burland, the donor of the Royal Edward Institute. The general conclusions include an emphatic statement that tuberculosis is infectious and transmissible. The unavoidable confession is made that the mortality from tuberculosis is higher in the Province of Quebec than in the Province of Ontario and the adjacent United States. It is further pointed out that the death-rate from tuberculosis in the rural population equals that in the urban population, who, theoretically, live under more unhealthy conditions; that the mortality among women is considerably greater than among men; and that the mortality among French Canadians is higher than among Anglo-Canadians. Attention is especially drawn to the spread of tuberculosis through contagion in families, in the collective life of schools, boarding schools, offices, and workshops—in short, through the influence of vitiated air in all places where people are gathered together. Means for combating tuberculosis are divided in the report broadly into: (1) Measures that can be carried out at once; and (2) measures to be carried out gradually. Among measures which the Commissioners hold can be carried out at once are included stricter application of the laws contained in public health statutes, the teaching of hygiene in schools, popular education in relation to tuberculosis, the medical inspection of schools and industrial establishments, the establishment of tuberculosis dispensaries in the principal centres, the erection of isolation hospitals for advanced cases among the poor, the establishment of open-air schools for certain groups of children, and legislative measures regarding institution of farm colonies and holiday colonies, the the employment of children, the abuse of alcoholism, and the inspection of meat and milk. Among measures to be carried out gradually may be noted the creation of sanatoriums, the improvement of dwellings under existing statutes, and fresh legislation to promote the building of cheap, healthy

dwellings for the working classes, and the improvement of hygiene generally throughout the province. Finally, the report terminates by the submission to the Lieutenant-Governor in Council of certain recommendations relating especially to the share the Government should take in the campaign against tuberculosis. These include the following five most practical requests, of which, in view of their significance in the present issue before the country, we reproduce the *ipsissima verba*.

1. That very explicit instructions be given to the Provincial Board of Health, to municipalities and other duly constituted authorities to enforce the regulations respecting the compulsory notification of tuberculosis, the disinfection of contaminated premises, the healthy condition of dwellings, schools, and industrial establishments; and that such authorities be actively assisted by the law officers when compelled to enforce such regulations.

2. That the Provincial Board of Health be the central authority which will direct the application of the means of combating tuberculosis and, to that end, that it be given a sufficient appropriation to establish a special department for tuberculosis with the necessary staff. That department should be under the direction of a *physician of acknowledged competence in the matter* (the italics are the Commissioners') who would apply all the educational means mentioned in the report, inspect the antituberculosis institutions, and strive to have others established to complete the antituberculosis armament, compile statistics, and submit a yearly report on his administration and on the results of the campaign against tuberculosis.

3. That in every municipality or union of municipalities, where there is a chartered antituberculosis association, the Government, on a favourable report of the Provincial Board of Health, contribute a proportionate amount (to be determined) towards the cost and maintenance of every established dispensary and empower the municipalities served by such dispensaries to contribute an equal amount towards their erection and maintenance.

4. That the Government contribute a proportionate amount (to be determined) towards the establishment of isolation hospitals or the construction of special pavilions in existing hospitals receiving advanced cases of tuberculosis among the poor and empower the municipalities served by such isolation hospitals or pavilions, to contribute to their erection and maintenance.

5. That the Government contribute a certain amount (to be determined) towards the maintenance of advanced cases of tuberculosis among the poor, in special hospitals or pavilions, by distributing that amount *pro rata* at so much per head and per week, and empower municipalities to also contribute in the same manner to the same object.

The recommendations are based on most interesting evidence which is cited throughout the body of the report and on the plan of the antituberculosis campaign of the city of New York and the plan of the antituberculosis campaign in Edinburgh, an account of each of which is included in valuable appendixes, which contain also an account of the present condition of the campaign against tuberculosis in the various provinces of the Dominion of Canada.

Dr. Archibald E. Garrod, F.R.S., has been elected physician to St. Bartholomew's Hospital to fill the vacancy caused by the retirement of Dr. Norman Moore from the active staff of the hospital.

HUNTERIAN SOCIETY.—The 93rd anniversary dinner of this society was held at De Keyser's Royal Hotel on Feb. 7th, the President, Dr. R. Hingston Fox, being in the chair. There was an attendance of 66 Fellows and guests, including ladies. The Royal toasts were proposed by the President; "The Hunterian Society" was proposed by Sir George Newman and replied to by Dr. A. T. Davies. "The Guests" and "Sister Societies" were proposed by the President. Mr. Rickman J Godlee replied for the Royal College of Surgeons of England, and Dr. J. Mitchell Bruce for the Medical Society. Dr. T. B. Hyslop spoke for the guests. A programme of music was provided by Miss Christine Roy and Mr. Robert Carr, vocalists, and Mrs. A. C. Jordan, who gave violin solos, Miss Gwendoline Williams playing the accompaniments. The music was much appreciated. The annual oration was delivered at the London Institution on Feb. 14th by Dr. T. Glover Lyon on "The Cure of Consumptives, a Review and a Forecast." Dr. Lyon emphasised the important part played and to be played by sanatoria in the treatment of consumptives, and drew attention to many practical points in which sanatorium treatment, as conducted in most existing institutions, failed to conform to the needs of the various types of patient.

AN EXAMINATION OF THE MEDICAL PROVISIONS OF THE NATIONAL INSURANCE ACT.

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III.[1]

Estimates of Attendance Required.

UNTIL the regulations are issued by the Commissioners, uncertainty must exist as to the services which are to be performed by practitioners under medical benefit. Nevertheless, attempts have been made to estimate the number of attendances which, on the average, each insured person will require, from the attendances received at present by members of Friendly Societies and clubs, including visits to patient's houses and consultations at home. It is worth while examining how far these figures are applicable to the persons who will be insured. The British Medical Association is collecting exact information on the point, but pending its publication the following may be quoted:—

Reference.	Number in club.	Average attendances.	Remarks.
B.M.A. Contract Practice Report, p. 14.	40,893	4·1	Figures totalled from 269 clubs.
Letter, *B.M.J.*, May 27th, 1911 (figures for 10 clubs)—			
Club B	42	2·8	Resident staff of firm—young men.
,, D, E, F, & G ...	267	4·5	Oddfellows.
,, H	41	1	Visits exceptionally distant.
,, I & J	229	5·8	Include single employed women.
,, K	195	3·8	—
,, L	15	3·2	All clerks.
From "Thirty Years Provident Dispensary Work," 1911.	Several thousand.	4·77	Unselected lives; no age-limit; 78% women and children.
Market Drayton Dispensary, *B.M.J.*, Dec. 2nd, 1911.	810	6·5	Unselected lives; bulk women and children.

Scattered through the Contract Practice Report, and in the columns of the medical journals for the last year, will be found other figures and estimates of a similar character. Most of them range between 1 and 6. The average for clubs consisting of adults examined before admission and with an age-limit appears to be about 4.

In applying these figures to the insured population the following factors have to be considered.

Value of life.—In most clubs there is an examination for admission, though often not of a very rigid character. Members of approved societies, despite the arrangements for deposit contributors, are not likely to be highly selected. Indeed, several important societies have already announced their intention of accepting members without any medical examination at all. But, as pointed out, promise has been given that bad lives shall be treated at a special rate of remuneration, and it is within the power of the Insurance Commissioners to arrange for a medical examination in every case before requiring a person to be attended at the ordinary fee. Thus that part of the insured population treated at the general rate might be more selected than existing club members.

Sex constitution.—This is of importance in view of the fact that women are believed to require more medical attendance than men. The actuaries estimate the number of persons likely to become members of approved societies, excluding Ireland, at: men, 8,530,000; women, 3,522,000—i.e., 70 per cent. men. These figures were compiled before the right was given to employed married women who were insured before marriage to continue, if they so elect, to be insured

[1] Articles I. and II. were published in THE LANCET of Feb. 10th (p. 383) and 17th (p. 447).

after marriage upon a reduced scale of benefits and contributions. The number who will exercise this right cannot be determined, but the actuaries suggest that it might be 700,000 in the course of ten years. Attendance in cases of maternity is of course excluded from medical benefit.

Age constitution.—The following is given by the actuaries as the probable age-distribution of persons expected to become members of approved societies:—

Age.	Number.	Age.	Number.
16-20 years	2,004,000	40-50 years	1,969,000
20-30 ,, ...	3,826,000	50-60 ,, ...	1,179,000
30-40 ,, ...	2,733,000	60-65 ,, ...	341,000

It will be noticed that 71 per cent. are under 40 years of age. In existing clubs the average age is probably higher. Sir Thomas Whittaker, during the debate on the second reading of the Bill, said that the position of some of the Friendly Societies was precarious and actuarially unsound owing to the increase in the number of the older members. "One of the strongest societies, the Hearts of Oak, has now three times as many members over 70 years of age as it had ten years ago."

Effect of sanatorium benefit.—If arrangements are made whereby advanced and chronic cases of tuberculosis can be sent to appropriate institutions, an appreciable reduction of the work required from the general practitioner may be anticipated. It has been estimated that 25 per cent. of the sick pay of the Foresters is in respect of this malady.

Venereal disease.—In practically all clubs this is an "extra." Under the Act it will be treated as part of medical benefit.

Organisation of the profession.—Advantage may be anticipated from the fact that in place of the existing competition, which has led to such disastrous results, medical men will be working together upon panels and in committees. This will enable arrangements to be made for mutual benefit. For example, medical men might agree to exchange patients, subject to their consent, so that each practitioner would have the bulk of his work in his immediate neighbourhood. It is said that insured persons will make unreasonable demands for medical attendance. There does not seem to be any cause why such abuse should be greater than it is among existing club patients, but in any case the profession will be in a stronger position to deal with it under the Act. Where at present a practitioner hesitates to complain of a tiresome person for fear of losing an appointment, he will in future run only the risk of losing a single patient. It is said, too, that attendances among club patients are swollen by malingering. But if the Medical Committees are given power to deal firmly with this evil, it should under the Act be reduced to a minimum. In comparing existing with future conditions it should be borne in mind that, except in localities where special arrangements are made, time will not be occupied in dispensing. It would appear, therefore, that several factors make, or may make, for a reduction in attendance as compared with that now given to members of clubs. If a reliable estimate could be made of the number of attendances each insured person, on the average, is likely to require, a useful step preliminary to fixing an adequate fee would have been taken.

The Remuneration.

Payments will be made to practitioners for medical attendance and treatment by the Insurance Committees with which they contract. The revenue of the Insurance Committees out of which the cost of medical benefit will be paid is to be derived partly from approved societies, which by Section 15 (6) are required to pay to the Insurance Committees such a sum in respect of their members as may be agreed upon between the society and committee, or in default of agreement may be determined by the Insurance Commissioners. No specific sum is mentioned here or elsewhere in the Act; the matter is entirely one for local arrangement or determination by the Commissioners. The remainder will be paid, in respect of deposit contributors, under Section 42, which provides that there shall be paid each year to the Insurance Committee out of the Post Office fund such sum as the Insurance Committee, with the consent of the Insurance Commissioners, determine. Here again no amount is specified by the Statute.

The 6*s.* which has been so often referred to was the sum the actuaries were told to assume as the cost of medical treatment and medicines for the purpose of determining the Government contribution. Whilst it is in no way statutory, it is probable that it will form a basis from which to start negotiations. In the ensuing paragraphs it is spoken of only in that sense.

To determine how the Insurance Act is going to affect medical practitioners financially is really a very difficult matter. Many doctors have stated that they anticipate losing from one-fifth to one-half of their income, but facts and figures in support of these statements have not been abundant, and where given they have, in some cases at least, been based upon errors, instances of which have been quoted. The reason is that the full data required to make a comparison do not exist. It is only in respect of patients—that is, persons actually treated—that reliable figures are forthcoming. A practitioner can readily determine from his books the number of times he has seen each of his patients and the amount he has received per attendance. But what he requires to know in order to estimate his position in the future is the number of insured persons who will be on his books; persons for each of whom he will be paid, though some will not require medical attendance at all. It is impossible to see how this figure can be arrived at, except in rare isolated districts where there is only one practitioner, who can be looked upon as having practically the whole population of the district under his care. Nor is this the only difficulty. In determining who among his patients are likely to become insured, a medical man must not only be familiar with the qualifications and conditions laid down by the Act, but he ought also to possess certain private information regarding the incomes, ages, &c., of his patients, which in many cases he may not have. Finally, assumptions have to be made both as to the amount of the capitation or other fee which may be fixed, and the effect of any income-limit which may be imposed.

A rather more hopeful line of investigation is based upon an estimation of the total amount each practitioner will, on the average, receive from the fund for medical benefit. In round figures, the total number of persons who will eventually be insured for medical benefit is 13,000,000. The number of practitioners estimated to be available for service under the Act is 24,000.[2] On the average, then, each practitioner will have on his books 542 insured persons, in respect of whom there will be paid £162 for attendance and medicines. The total population of Great Britain is 40,834,714. Deducting 1,000,000 for persons in the services, &c., the number of persons to each practitioner is 1660. If, therefore, the whole population were insured at the same rate, the average medical income from medical benefit would be just under £500, out of which would have to be provided the cost of drugs, &c. It is, of course, impossible to determine what the average medical income is, but in a recent correspondence in the *British Medical Journal* it was placed appreciably below this figure.

Another rough comparison may be made by estimating as far as possible the total amount which is at present paid for medical attendance and medicines by the 13,000,000 persons who will be insured by the Act. It has been calculated that there are at the moment about 4,000,000 persons receiving medical treatment through Friendly Societies, of whom doubtless the great majority will become members of approved societies. Figures in the Contract Practice Report and elsewhere show that these pay on the average to the medical profession for attendance and medicines about 3*s.* 6*d.* per annum or, say, 4*s.* to allow for a certain number who, though subscribing to a club, pay a doctor privately. It may be taken that members of registered Friendly Societies on the whole do not consist of the poorest section of the working class. To quote the Contract Practice Report, "it is probable that the great bulk of the members of the registered Friendly Societies are, in fact, drawn from those of the working classes who follow regular occupations, together with a considerable number of small shopkeepers. ..... There is evidence that in various districts a considerable number of persons are taking advantage of the arrangements who are in a better social position than those for whom the service was intended." Do the remaining 9,000,000 pay on the average more or less than members of registered Friendly Societies? Of some of them the report says: "The smaller or unregistered Friendly Societies, and especially

[2] Brit. Med. Jour, Jan. 13th, 1912.

the Dividing Societies, while they provide mainly for a somewhat similar class, cater rather more than the large Permanent Societies for those who are less regularly employed." There is also a large class who subscribe to private clubs or provident dispensaries, and another large group who receive their medical attendance through the Poor-law or hospitals, or go without it altogether and resort to self-medication. An interesting light is thrown upon the expenditure by working girls on medical attendance, &c., by a volume published recently by the Board of Trade,[3] containing a detailed analysis of the total expenditure for a year of 32 girls employed in factories, dressmaking, and other occupations. The average weekly wage was 15*s.* 9*d.* Of the 32, one was insured for medical benefit. The total expenditure of the remainder under the heading of medical attendance and medicines was £12 5*s.* 5*d.*, and was made up as follows: medicines, £6 7*s.* 6½*d.*; dentist, £2 17*s.* 6*d.*; doctor, £1 5*s.*; miscellaneous, £1 15*s.* 4½*d.* The high proportion spent upon medicines is noteworthy. The bulk of it consisted of patent and proprietary drugs. "Miscellaneous" includes such expenses as payment of substitute while away from work, eye-glasses, chest-protector, &c. These were all young girls, but several were ill and away from work for various periods during the year. Still they must be regarded as to a certain extent picked, for any girl who was seriously ill would presumably not have been able to keep up the record.

Against these poorer classes must be placed the class of comparatively well-to-do private patients who may come in as voluntary contributors. Their numbers and qualifications have already been considered. While individually these will pay less, it does not seem probable that they will be so numerous as to wipe out all the gain upon the others.

These considerations have not been brought forward with a view of suggesting that a 6*s.* capitation fee is sufficient. No sum can be accepted or even considered by the profession until the duties to be performed for medical benefit have been defined. Under any circumstances an efficient service can only be obtained if the remuneration is adequate. It is merely intended here to point out the danger of making a claim for a higher fee on the ground that the profession as a whole is at the moment getting a larger total sum from the persons who will be insured than it will receive under the Act.

The method of payment is a matter for local arrangement. Payment by capitation fee has the advantage that it reduces the cost and trouble of bookkeeping.

Cost of drugs.—An obvious criticism of the foregoing is that the profession will not get 6*s.*, since this has also to cover the cost of drugs and such surgical appliances as may be prescribed. But for purposes of comparison it is necessary to take the higher figure, since medicines are usually included with attendance among the working class. It is currently assumed that the cost of drugs will be 1*s.* 6*d.*, leaving 4*s* 6*d.* for the doctor. But there is no statutory authority for this division, nor is there anything to justify it in the Actuaries' Report. Most practitioners with knowledge of dispensing will agree that 25 per cent. is an unnecessarily high proportion to allocate to cost of drugs. It is a matter for regret that Insurance Committees are probably unable under the Act to open and conduct their own dispensaries, as the system by which an insured person can have a prescription made up by any chemist on the list is costly. Medical men themselves can help to reduce the expenditure. Probably there will be less drug-taking than there is at present, and medicines will be prescribed in more concentrated form and in larger quantities at a time. The indiscriminate sale of patent and proprietary medicines has always been regarded by the profession as harmful. The regulations might well require that doctors on the panel should be forbidden to prescribe them. As regards surgical appliances it is important to notice that Section 12 empowers a society or committee to provide them out of the fund for sickness benefit in the case of a person who is an inmate of any workhouse, hospital, asylum, convalescent home, or infirmary.

Payments from Other Sources.

It has been assumed by many practitioners that 6*s.* for medical benefit is the only sum that can be paid to them whatever the services they may be called upon to perform. Some, for example, have supposed that they will be required to furnish various reports and statistics under Section 60 which makes Insurance Committees responsible for such duties. But the Act clearly defines medical benefit as medical treatment and attendance, and practitioners will be justified in asking for additional remuneration for any services which are not of this nature. The point is of importance in view of the fact that the rate paid by the Government for attendance upon Post Office employees—viz., 8*s.* 6*d.*—is being used as an argument for raising the capitation fee for medical benefit to that figure. It must be remembered that for this remuneration Post Office doctors have to perform duties other than those of a purely therapeutic character. It is desirable to enumerate briefly the various services which may be the subject of extra remuneration from medical benefit, or may be paid for from other funds under the Insurance Act.

Extra medical services.—The guarantee that the profession has here is contained in the statement made by the Chancellor at the special Representative Meeting on May 31st. As reported by the *British Medical Journal*, June 3rd, he said: "Of course, the payment of a specialist would not be included in the capitation fee, and, therefore, if there were consultations, they must necessarily be outside the range of whatever capitation grant is paid; it must necessarily be. That would not be a burden cast upon the medical man, but the society, or the Local Health Committee, as the case may be, would have to pay that fee. With regard to operations, that also I should put in the same category. Most of the various operations—not all, of course—would be performed in institutions, and I can well understand the medical profession insisting upon special arrangements being made for serious operations. That is a matter you will have to arrange with the Local Health Committee, subject to the approval of the Insurance Commissioners." On the question of night work he did not express a definite opinion. The promise made on the same occasion of a higher rate of pay for bad lives has already been quoted. The Chancellor concluded with the remark, "I think it would be better for you if you were to confine yourselves to those three or four really big burdens upon the profession—consultations, operations, and mileage."

For major operations, arrangements will probably be made with hospitals, and Section 21 allows payments to be made to hospitals from various sources. It would obviously be unfair to charge to medical benefit the entire cost of an operation which has the effect of saving the funds for payment during sickness and disablement.

Mileage.—This might be regarded as covered by the promise that local circumstances shall be taken into consideration in fixing the capitation fee. Clearly 6*s.* is not high enough in a scattered country district, but is it quite reasonable to ask for a higher capitation fee and mileage in addition to that? In towns mutual arrangements between practitioners should reduce long journeys to a minimum.

Certificates.—It has already been pointed out that approved societies will require numerous certificates in order to make the payments in respect of sickness and disablement benefit. Medical practitioners will be under no contract with approved societies, and it will be a matter for mutual arrangement whether payment shall be made for each certificate or by some other system, and what the amount shall be. These certificates impose legal liabilities upon the medical men giving them, and cannot be regarded as medical treatment and attendance. It is, of course, impossible to determine what the number of certificates required will be. In London the percentage of sick absentees on the established staff of the Post Office in 1909 was for males 60 and for females 84. Allowing for repetitions, it is possible that, on the average, each insured person might require one certificate.

Treatment of tuberculosis.—If practitioners on the panel are recognised as persons undertaking treatment of tuberculosis within the meaning of Section 16, a substantial addition to the remuneration from the fund for sanatorium benefit may be anticipated. Further, Section 17 (1) allows the Insurance Committees to extend the special treatment to the dependents of insured persons, and for them obviously extra fees must be paid. The amount available for sanatorium benefit, irrespective of the grant of a million and a half for building, is 1*s.* 3*d.* per insured person. There is no reason

[3] Accounts of Expenditure of Wage-earning Women and Girls.

why a considerable proportion of this should not go to the medical profession.

Maternity benefit.—In estimating remuneration on a capitation basis per insured person, some part of the payment from maternity benefit should be excluded, since it will be paid in many cases in respect of persons outside the 13,000,000. The Chancellor of the Exchequer estimated that £500,000 would go to the medical profession from this source, but the grounds for this opinion were not stated. If fees are raised very much, societies may encourage their members to obtain the services of midwives rather than doctors. The profession should, however, secure a substantial increase in the fees paid for attendance upon cases to which they have been summoned under the Midwives Act of 1902.

LORD LISTER'S FUNERAL.

ON Friday last, Feb. 16th, the body of the late Lord Lister, the greatest Englishman of his century, the master surgeon, was buried at Hampstead Cemetery near that of his predeceased wife. So much his country, which would fain have done him the highest honour that lay in its power by burial in the national Pantheon, was constrained to yield to his own personal wishes. But it claimed at least the prerogative of first paying final homage by a solemn memorial service in the historic great Abbey of Westminster. For Lister was a maker of history, not for England only, but for the human race. No personal skill as a surgeon, however great, could have gained for him the homage and gratitude of the entire world. It was the keen observation, the years of patient questioning of Nature's ways, the illuminating insight, the patient demonstration that finally enabled him to lay a firm foundation for the surgical art—never to be superseded no matter what developments in superstructure it may be called on to sustain—that called forth the splendid tribute of reverence to the remains of Lord Lister from rulers and nations, from the scientists and savants of the earth, and from representatives of every rank and class in life among his own countrymen.

Before 1 P.M. the lantern and choir of Westminster Abbey were filled with official representatives, and a goodly portion of the general public occupied the north transept and aisle and the nave. The King was represented by Sir Frederick Treves, Queen Alexandra by Sir Francis Laking, and Princess Louise (Duchess of Argyll) by Mr. Oswald Balfour. The Prime Minister in person offered the tribute of the nation at large. Austria-Hungary, France, Germany, Italy, and Russia sent their Ambassadors; Belgium, Denmark, Greece, Sweden, Norway, and Portugal their Ministers; the Chinese Minister was represented by Dr. Wu Lien-Teh; and Servia by its Chargé d'Affaires. The Government was represented through the Medical Departments of the Local Government Board and the Board of Education, the Army and Navy Medical Services, and the West African Medical Staff. Representatives of scientific bodies, foreign as well as British, were present; the Swedish Academy of Science, the Norwegian Society of Science, the Madrid Academy of Medicine, the Accademia dei Lincei of Rome, the Imperial Academy of Sciences of St. Petersburg, the British Academy, the Royal Institution, the British Science Guild, the Royal Institute of Public Health, the Hunterian, Royal Microscopical, and Zoological Societies, and Kew Gardens, in addition to those enumerated below which sent special delegates to the procession. The Royal Colleges of Surgeons and of Physicians of the three kingdoms and the Society of Apothecaries were represented, as was every University in Great Britain and Ireland, the medical societies, the Edinburgh and Glasgow University Clubs, the Merchant Taylors' Company, Epsom College, University College of South Wales, the constituent colleges of the University of London, the Norfolk and Norwich Hospital, and the general and special hospitals and medical schools of London, Oxford, Edinburgh, and Glasgow.

The scene in the Abbey during the interval of waiting was truly impressive. A spirit of reverence dwells within those lofty grey walls, and in very truth it hovered over the entire congregation there gathered together. The silence was profound. Notwithstanding a continuous stream of newcomers hardly a sound could be heard, and the demeanour of all was grave. Presently Purcell's exquisite music, composed for the funeral of Queen Mary in 1694, broke in upon the silence from the organ. This was followed by Chopin's "Marche Funèbre," and finally trombones, stationed high up in the triforium, played the Tres Æquali of Beethoven. Then came, faintly at first, the voices of the choir singing the hymn "Brief life is here our portion," as the coffin was borne from the Chapel of St. Faith, where it had rested during the previous night, to a high bier at the foot of the altar rails, surrounded by six burning candles. In the front of the procession came the clergy, with the Dean of Westminster, Bishop Ryle, at their head. A magnificent wreath of orchids and lilies, sent by the German Emperor, and deposited on the coffin by the German Ambassador while it lay in St. Faith's Chapel, was carried in front of the coffin. Splendid wreaths were also displayed at the altar rails from the Institut Pasteur of Paris, the Congress of German Surgeons, and the Medical Society of Amsterdam. The coffin was covered with a purple pall, and on it were laid Lord Lister's three most distinguished orders—the Order of Merit, the Prussian Order Pour le Mérite, and the Grand Cross of the Order of the Danebrog. The pall-bearers, in their various official robes, escorted the body. They were Lord Rayleigh, O.M., representing the Order of Merit; Lord Rosebery, for the University of London; Lord Iveagh, for the Lister Institute; Sir Archibald Geikie, President of the Royal Society; Sir Donald MacAlister, Principal of Glasgow University; Sir Watson Cheyne, Bart., for King's College, London; Mr. Rickman J. Godlee, President of the Royal College of Surgeons of England; and Professor F. M. Caird, for Edinburgh University. Immediately following were the principal mourners, consisting of Mrs. Lister, Mr. and Mrs. J. J. Lister, Dr. A. H. Lister, Mr. and Mrs. W. T. Lister, Miss Lister, Miss E. M. Lister, Miss G. Lister, Dr. and Mrs. A. G. Phear, Mrs. R. J. Godlee, Mr. and Mrs. J. Lister Godlee, Mr. and Mrs. A. Godlee, Mr. F. Godlee, General Burn, Mr. T. Godlee, Miss Godlee, Mr. J. Harold Pim, Mrs. Goodbody, Miss Pim, Miss C. Pim, Mr. A. Lister Harrison, the Right Hon. J. W. Wilson, Mr. and Mrs. Albright, Mr. and Mrs. C T. Barclay, and Mr. Ernest Beck. The Lord Mayor of London (Sir Thomas Crosby, M.D.) and the Lord Provost of Edinburgh came next, and were followed by the official delegates from various scientific and learned societies. The French Academy of Science sent its President (Professor Lippmann), and also Professor Chauveau and Professor Dastre; the Institut Pasteur of Paris sent Professor Roux; the French Academy of Medicine, Professor Pozzi; the German Congress of Surgeons its President (Professor Garré); the Société de Chirurgie de Paris, Sir Victor Horsley; and the Medical Society of Amsterdam, Professor Treub. The Royal Society of London sent its treasurer, Sir Alfred Kempe; its secretaries, Sir Joseph Larmor, M.P., and Sir John Rose Bradford; and its foreign secretary, Sir William Crookes, O.M.; while the Royal Society of Edinburgh sent Sir James Dewar. The Royal College of Physicians of London sent its President, Sir Thomas Barlow, Bart.; its Senior Censor, Dr. J. Mitchell Bruce; its Registrar, Dr. J. A. Ormerod; and Sir Richard Douglas Powell, Bart. The Royal College of Surgeons of England sent its Vice-Presidents, Mr. C. W. Mansell Moullin and Mr. C. T. Dent; that of Edinburgh, its President, Mr. G. T. Berry; and that of Ireland, its President, Mr. R. H. Woods. The delegates from the University of London were Sir Edward Busk (chairman of Convocation), Sir H. Miers (Principal), and Sir Philip Magnus, M.P.; from the University of Edinburgh, Professor Alexis Thomson; and from the University of Glasgow, the Lord Rector, Mr. Birrell. Other delegates were Sir Henry Morris, President of the Royal Society of Medicine; Mr. Edmund Owen, for the British Medical Association; Sir William Ramsay, President of the British Association; the Bishop of Exeter, Principal the Rev. A. C. Headlam, D.D., and Professor J. M. Thomson, F.R.S., for King's College, London; Sir David Ferrier and Dr. Nestor Tirard for King's College Hospital. University College sent its Provost, Dr. Gregory Foster; and University College Hospital Medical School its Dean, Mr. Raymond Johnson.

The service was brief but impressive. After the Ninetieth Psalm, *Domine, Refugium Nostrum*, had been chanted by the choir to Purcell's music, and the lesson from I. Corinthians, xv., had been read by the Dean, the choir sang Handel's "When the ear heard Him," the concluding sentence of which—"His body is buried in peace, but his name liveth

evermore"—was splendidly appropriate. Goss's anthem, "I heard a voice," followed, and after the prayers had been recited by the Precentor, and the hymn, "O God, our help in ages past," had been sung by the congregation, the procession was reformed and the body borne on the way to its final resting place to the solemn roll of the Dead March in "Saul."

To the onlooker, perhaps, the most significant characteristic of the assembled congregation was the spirit of reverence that seemed to permeate all present. In a mixed assemblage of all religious creeds, containing many, perhaps, owning no creed, official attendance on an important function is commonly satisfied with the preservation of due decorum. In the present instance, however, there was more than that visible in the demeanour of everyone. To those of the Church of England the ever beautiful service spoke its accustomed words of hope, but in a voice of unusual sweetness. Those of other faiths, doubtless, translated its significance into terms of their own. But all at least were alike impressed with that view of immortality which sees the survival of personality in the enduring work of one who devotes his life to furthering the welfare of the human race; and this was particularly evident in the case of him who established the relief of human suffering on an everlasting basis.

OFFICIAL MANUAL OF CAUSES OF DEATH.

IN his Supplement to the Fortieth Annual Report of the Local Government Board, already noticed in these columns,[1] Dr. A. Newsholme foreshadows the removal of some of the defects in our national vital statistics that detract from their usefulness for purposes of sanitary administration.

Sanitary and Registration Districts.

Owing to lack of correspondence between the areas dealt with by the Local Government Board and the National Register Office respectively, comparison among the vital statistics of these areas has hitherto been impracticable. These defects will shortly disappear, for the Registrar-General has undertaken to substitute sanitary districts for registration or Poor-law districts as the areas for which returns of birth and death will be published from the year 1911 onwards.

Moreover, as the coöperation of the Central Statistical Office may presumably be relied on for the calculation of local rates of mortality, we doubt not that in such event the county as well as the district medical officers everywhere will be glad to be relieved of that irksome part of their duty, so that more time may be available for the discharge of their definitely preventive functions.

The medical officer of the Local Government Board further states that the Registrar-General has undertaken to issue to every medical officer of health a "Manual of Causes of Death" which will contain the new standard tables, and will define the contents proper to the various items in the list, showing how each form of death certificate should be classified.

Nature and Object of Manual.

In fulfilment of this undertaking the present manual has been issued by authority of the Registrar-General. The work has been compiled by Dr. T. H. C. Stevenson, the superintendent of statistics, Mr. Bernard Mallet's contribution thereto being limited to a brief minute officially submitting the document to his parliamentary chief. A work on similar lines but more comprehensive in scope has recently been published by Dr. Cressy Wilbur, chief statistician to the United States Census Bureau. It is upon this work, a copy of which lies before us, that the English manual is avowedly based, although in preparing the latter many exclusively American expressions have been omitted, whilst numerous terms have been added which are in common use here but not in the United States.

In projecting the present work it has been the compiler's endeavour to secure the nearest approach to uniformity of tabulation of facts throughout the United Kingdom. For reasons given in the introduction the form of the Scottish and Irish list of causes will not be identical with that of the English list, though the differences will be slight. But in England and Wales complete uniformity will be obtained by the adoption of the standard list at Somerset House and Whitehall respectively, and the use of the same list will doubtless be required in the reports of all medical officers of health. This standard list is already published, and will be circulated with the manual itself among medical officers of health generally. Included in the manual will be found revised suggestions to medical practitioners in filling up their death certificates. We presume that a copy of these suggestions will be sent to every medical practitioner on the Register, and it would certainly be desirable that this should be accompanied by a copy of the manual itself.

Classification of Causes of Death.

In Dr. Stevenson's judgment the only classification of diseases that is essential in a standard list is that it should secure the correct assignment of a given cause to one or other of the included titles. The order of titles in the list he regards as of less importance, inasmuch as that order admits of alteration according to individual requirements, whereas the user has no means of modifying the grouping of death causes under titles.

Readers of the earlier reports of the Registrar-General will be aware that the order of causes originally adopted by Dr. Farr about the middle of last century was based on anatomical rather than on etiological considerations. On this point, however, it seems reasonable to conjecture that Farr's preference may have been determined by the primitive and unsettled state of etiological knowledge at the time. In any event, the author of the present manual has decided to revert to Farr's practice, and he does so on the ground of the greater convenience to statistical students that he believes to attach to a regional as compared with a causal arrangement. Whether this decision is the wisest in the circumstances experience alone can determine. Meanwhile it is due to Dr. Stevenson to note his acknowledgment that "the grouping of causes of death is a subject in regard to which there is room for differences of opinion; and, further, that the individual points which require consideration in preparing such a manual as this are so numerous and in some cases so complicated that it will not be surprising if critical use of the work reveals a number of defects in regard to detail, whether the general principles followed prove acceptable or no."

Criticism of New Departure.

In justification of the action of the Registrar-General's predecessor, who in the year 1901 revised the official list of death causes, it may be pointed out that in so doing he simply followed the example of the Royal College of Physicians of London in the decennial revision of the nomenclature then in course of preparation. On account of the admittedly infective nature of certain diseases, such as pneumonia, cerebro-spinal fever, epidemic diarrhœa, &c., the College deliberately transferred them to the class of "general diseases" from their original places among purely local affections. If the College in its approaching fourth decennial revision, pursues the same course respecting several of the so-called "local" diseases, we shall be in nowise surprised.

Among adverse criticisms of the new departure may be noted one by Sir John W. Moore, of Dublin, the eminent sanitarian and ex-President of the Irish College of Physicians who in a letter to us[2] severely condemns the changes initiated recently in the Registrar-General's mortality returns. The gravamen of his charge is that the transference to merely local affections of such unquestioned acute infections as cerebro-spinal fever, pneumonia, epidemic diarrhœa, and puerperal fever from their rightful position under the heading epidemic diseases places a formidable block in the path of sanitary reformers and medical officers of health. The hands of the State-medicine clock are being put back a quarter of a century at least—to pre-notification days. Writing as a resident in Ireland, Sir John Moore regards with concern a modification in the list of causes of death which will probably delay the inclusion under the Notification Act of such death-dealing yet preventable maladies as pneumonic fever and epidemic diarrhœa.

Continuity with Past National Records.

Dr. Stevenson assures us that the difficulty of arranging for the continuity of official records has been almost entirely overcome by subdividing some of the titles in the new

[1] THE LANCET, Nov. 25th, 1911, p. 1501.

[2] THE LANCET, Jan. 21st, 1911, p. 189.

extended table, which will be published in subsequent annual reports of the Registrar-General, together with the necessary subdivisions of titles in tables of the mortality of the whole country.

Primary and Secondary Causes of Death.

Among other good points in the manual may be noticed an attempt to explain the meaning of the terms "primary," and "secondary" as applied to causes of death in the medical certificates, the official form for which has been revised for use from the year 1911 onwards. The definitions of these terms were adopted after consultation with the Royal College of Physicians of London. They have been designed to secure, as far as possible, that the certifying practitioner, the only person fully qualified to do so, shall select as primary that cause of death which was of greatest importance, and upon which any other related causes mentioned were dependent. In the suggestions to medical practitioners already referred to we read that by "primary cause of death" is meant (in the case of death from disease) the disease present at the time of death which initiated the train of events leading thereto, and not a mere secondary, contributory, or immediate cause, or a terminal condition or mode of death.

A terminal condition or mode of death should not be entered as a secondary (or contributory) cause In a very large proportion of instances the statement of the primary cause gives all the information required; in these cases nothing is gained by adding as a secondary cause such a condition as "syncope," "heart failure," "coma," "exhaustion." Thus a certificate of "pulmonary tuberculosis" is not improved by the addition of "exhaustion" as a secondary cause; though if a complication such as "pneumothorax" had supervened this should be noted as a contributory cause of death.

We have been led to notice this part of the manual thus fully because it is by no means certain that the Treasury will sanction the circulation of the work to medical practitioners generally, although they are called upon to supply gratuitously the indispensable information respecting the cause of death which they alone possess. Quite significant in this regard is the fact that the price of the manual (1*s.*) is printed on the cover.

REPORTS ON PLAGUE INVESTIGATIONS IN INDIA

ISSUED BY THE ADVISORY COMMITTEE APPOINTED BY THE SECRETARY OF STATE FOR INDIA THE ROYAL SOCIETY, AND THE LISTER INSTITUTE OF PREVENTIVE MEDICINE [1]

Epitome of Some Recent Observations on Rat Fleas.

THE chief points noted in this summary of recent work on rat fleas elsewhere than in India are: 1. English field rats harbour C. fasciatus and Ct. agyrtes in about equal numbers. 2. The tropical rat flea (X. cheopis) has been found on rats at Guy's Hospital in London in abundance. 3. The work of Chick and Martin shows that C fasciatus feeds on man about as readily as on the rat or rabbit; the common mouse flea (Ct. musculi) and Ct. agyrtes, on the other hand, bite man hardly or not at all. 4. Observations in Marseilles by Gauthier and Raybaud, in Sydney by Tidswell, and in Japan by Kitasato show that at each place there is a seasonal variation in the prevalence of rat fleas, especially of X. cheopis, and that the maximum abundance of fleas is found at the time of year when plague epidemics in man mostly prevail in the given locality.

Preliminary Observations on an Anti-plague Serum.

Preliminary observations on the protective and curative value for rats of the serum of a horse immunised with a toxic nucleo-proteid extracted from the plague bacillus have been made by Dr. Sydney Rowland. The serum prepared possessed, when tested on rats, considerable antitoxic value, 1 c.c. neutralising about 100 fatal doses of the toxic nucleo-proteid with which the horse had been inoculated. It also had a good prophylactic value against infection with living plague bacilli, 1 c.c. protecting every animal, and 1/10 c.c. 7 out of 10 rats, against a dose of plague bacilli inoculated 24 hours later which killed 80 per cent. of untreated rats. The serum was also efficacious in a curative way when administered subsequent to infection, and it is shown to save the lives of a sensible proportion of infected rats even when given as long as 24 hours after infection. This is the more remarkable since the control rats, inoculated but untreated with serum, begin to die on the second day.

Second Report on Investigations into Plague Vaccines.

Dr. Rowland continues his studies of the toxic nucleo-proteid which he has extracted from the plague bacillus and which, as he has previously shown, acts as a highly efficient vaccine in rats in doses so small as 1/1000th milligramme. This nucleo-proteid forms loose compounds with chloroform and toluol, which are relatively non-toxic and are easily reversible; these compounds have greatly diminished immunising power. The effect of heat on the toxic and immunising powers of the nucleo-proteid is much less if the whole bacillus is heated before extraction than when the extracted nucleo-proteid is heated in solution in dilute saline. Extracts of the plague bacillus contain an active proteolytic enzyme. If this be allowed to act on the nucleo-proteid the immunising power at first increases and then remains steady for some months; the toxic value, on the other hand, diminishes progressively, so that after some time the hydrolysed extract is relatively non-toxic, but still forms a very efficient vaccine both against toxic nucleo-proteid and against infection with live bacilli. Hence the protective and toxic properties of such an extract of plague bacilli are distinct.

Statistical Investigation of Plague in the Punjab. Second and Third Reports.

Dr. M. Greenwood continues his statistical analysis of the data collected by the late Major George Lamb, I.M.S., on the occurrence of plague in the villages of the Punjab and United Provinces. Investigating the influence of proximity to railways, he finds that in districts containing large cities, villages near a line of railway are liable to a higher rate of plague epidemics than villages, similar in size and other respects, not so situated. This is probably due to increased opportunities for personal transit rather than to the movement of merchandise, since in purely or mainly agricultural districts proximity to railways does not entail any increased liability to plague infection. It is also shown that large villages tend to be infected earlier in the plague season than small villages; that the mortality from plague tends to be greater the earlier a village is infected; and that in nearly all cases large villages, when infected, suffer less heavily than smaller communities. There is some evidence that the same difference between large and small places obtained in England in the fourteenth to seventeenth centuries. Analysis of the possible explanations leads to the conclusion that the difference in mortality depends upon some material factor which varies with the size of the community rather than on the random incidence of plague infection on a population living in aggregates of varying size.

Observations on Plague in Eastern Bengal and Assam.

The province of Eastern Bengal and Assam has suffered very little from bubonic plague, although it is in close proximity to heavily infected districts in Bengal (Calcutta, Saran). Imported cases from these districts have from time to time given rise to small outbreaks of pneumonic plague, but no bubonic epidemic has arisen. The Commission has made an inquiry lasting over a year into the conditions which might determine this immunity. In Dacca an investigation was undertaken for the whole 12 months into the prevalence of rats and fleas, and other places were visited for short periods. It appears that the freedom of the province from plague can be attributed chiefly to the scarcity of rats in the houses. Per 100 traps set, from 1 to 9 Mus rattus were caught in different places, as compared with 20 to 50 in Poona, Belgaum, Punjab villages, and other heavily infected localities. This comparative scarcity of rats seems to be due partly to the habits of the people, who are comparatively clean, neat, and tidy in their household arrangements, and partly to the structure and disposition of the houses, which are either too well built or too flimsy to afford much shelter for rats. In many places, also, the houses are widely separated from one another. The Commission visited also the neighbouring town of Bhagalpur in

[1] Journal of Hygiene, vol. xi., 1911. Supplement, pp. 1–206. Accounts of previous reports will be found in THE LANCET of Nov. 3rd, 1906, p. 1233; July 27th, 1907, p. 246; Jan. 25th, 1908, p. 253; and Dec. 3rd, 1910, p. 1640.

Bengal, which has suffered rather severely from epidemic plague on several occasions; here were found the more usual ill-built, crowded, and dirty houses with mud walls, and 34 rats were caught for every 100 traps set. Rat fleas were found to be about as common as elsewhere in India, varying from 2 to 8 per rat in different places. In Dacca weekly observations showed that there was a distinct seasonal variation in the prevalence of fleas, the maximum falling in April—i.e., in the plague season as judged by the seasonal prevalence of plague in Calcutta (160 miles distant).

Observations on the Breeding of Mus Rattus in Captivity.

To breed wild rats successfully in captivity it was found necessary to have a separate hut for each pair. If several pairs were confined in the same hut, provided with artificial burrows, &c., not only were young never produced but on being killed the females were never found pregnant. Under appropriate conditions, however, an active pair will produce from 29 to 44 young per annum; the commonest number in a litter is 6, with an average interval of 56 days. The young will breed when 5 months old, probably earlier, and in the absence of any mortality it may be calculated that a single pair will increase to 198 in 12 months and 858 in 16 months. Interesting data are given with regard to the rate of growth of young rats in length and weight; up to about 100 grammes weight (14 weeks) they grow about 1 gramme per day, weighing 4 grammes at birth.

Major George Lamb, M.D. Glasg., I.M.S.

An obituary notice is given of this distinguished officer of the Indian Medical Service, who had been associated with the work of the committee since its commencement in 1905, for the most part as officer in senior charge of investigations in India.

MEDICINE AND THE LAW.

Action arising out of the Sale of a Medical Practice.

AT the recent Devon assizes Mr. Justice Darling with a special jury tried an action brought by the executors of the late Mr. J. Gordon against Mr. J. W. Winterburn for £200 alleged to be due under an agreement for the purchase of the medical practice of the former, or in the alternative for damages for breach of an agreement to purchase. The defendant alleged that he was induced to enter into the agreement by misrepresentation and counterclaimed that it should be rescinded. The case was opened by counsel for the defendant in support of the counterclaim to the effect that the defendant desiring to purchase a medical practice was attracted by an advertisement in THE LANCET, which described as for sale an "unopposed country practice; appointments about £90; scope for increase; residence available with land; low rates; inclusive rental £26." The defendant accordingly inspected the place and had interviews with the plaintiffs, when he was informed that another medical practitioner residing in the neighbourhood had retired and was occupying himself with farming, being also told that this gentleman had looked after the patients of the deceased at a time when he had been incapacitated by an accident. The defendant did not inspect the books of the deceased as he was told they were badly kept, but was given particulars of two appointments as medical officer to guardians, two clubs, and vaccination fees, which were estimated to be of a total value of £80 or £90 a year. The whole of the earnings of the late occupant of the practice were put down as about £230 per annum, no mention being made of opposition. The defendant after further negotiations agreed to pay £300 for the practice, and did pay down £100. Later, when he had entered upon practice the guardians declined his application for the appointments, which amounted to only £37 15*s*, and advertised them; he found the total of the private practice of the deceased to have been considerably less than alleged, and that Dr. G. R. Ayshford, the medical man already mentioned, was in fact practising. He eventually was informed by Dr. Ayshford that the deceased had given way to the drug habit and had lost practice thereby, and eventually agreed to go into partnership with Dr. Ayshford, upon terms which enabled him to secure one of the Poor-law appointments originally spoken of. In his evidence the defendant laid stress upon the statements that the practice was unopposed, and upon the amount alleged for the appointments available as being the misrepresentations of which he particularly complained. Evidence as to the value of these and as to the practice of the deceased was given. For the plaintiffs, evidence was given to the effect that the advertisement in THE LANCET quoted above was an old one used for the sale of the practice when the deceased bought it, which had been repeated through an error, and that the defendant had been fully informed of its inaccuracies by the executors. It was also stated that he had been told that Dr. Ayshford attended patients, reference being made to his doing this in some cases as locum tenens for Mr. Gordon, with the suggestion that he might not retain these. At the close of the case Mr. Justice Darling left the following questions to the jury, who gave the answers appended: 1. Did the plaintiffs make Mr. Winterburn the misrepresentations alleged?—Yes. 2. If so, was Mr. Winterburn thereby induced to agree to buy the practice of the late Mr. Gordon and to pay £100 as part of the price?—Yes. 3. Has Mr. Winterburn had and kept any part of what he agreed to buy?—Yes. (This refers to the defendant having remained in the district after entering into partnership with Dr. Ayshford.) 4. If so, what is the value of what he has had and kept?—£120, including £100 paid as deposit. Judgment was not given, the consideration of the precise effect of the jury's findings being reserved for argument at a later date in London.

Summoning a Medical Man in an Emergency.

An inquest was held recently in the Westminster coroner's court upon the body of a lady engaged in journalism and residing by herself in chambers in Davies-street, Berkeley-square. There was no doubt upon the medical and other evidence that the deceased had shot herself with a revolver, which she kept to the knowledge of her friends for the purpose of self-defence, and the verdict of the jury was probably a correct one—that she had met with accidental death while handling the weapon in question. Frequent protest has been made in THE LANCET against the carrying of revolvers in public, but the keeping of a firearm by a lady living alone, with a view to a possible emergency, such as the visit of a burglar, is, of course, a different matter. A revolver, in such circumstances, may some day prove a valuable protection, but its value will depend upon expert handling, and its owner should render herself familiar with its use, never forgetting the danger of manipulating it carelessly. In the instance under comment two of the witnesses who knew that the deceased owned such a weapon were not able to say that she had ever fired it, and one of them was of the opinion that she knew very little about its use, although she kept it loaded by her bedside. A feature of this case, however, of more interest to the public and to medical practitioners than the use or abuse of pistols, consists in the fact that in the middle of the West-End of London one of the witnesses, a lady friend of the deceased, who found her lying wounded and hastened to summon a medical man, was apparently engaged for about an hour in scouring the neighbourhood in a taxicab in order to find one. The conditions were peculiar as to time and locality, for the shooting took place about 5 P.M. on a Sunday, and, as we have said, in Davies-street, Berkeley-square. It will readily be realised that in almost all the nearest streets the number of brass plates on the front doors would appear to suggest an abundant supply of surgical aid for any person seeking for it, but in fact the number of gentlemen at hand and ready to respond to such a call proved to be extremely small. According to the evidence, the witness tried Brook-street, Brutton-street, Jermyn-street, and Harley-street before securing the assistance of Mr. Walter Wise from George-street, Portman-square, who about 6.30 P.M. found the deceased moribund, and afterwards gave evidence at the inquest. The difficulty might not have occurred if the deceased had had occasion to consult a general practitioner in her neighbourhood, but it must be remembered that a young lady in good health may not even know the name of any medical man resident within a mile of her dwelling, and that on a Sunday afternoon, with the shops closed and the streets empty, it would be doubly difficult to obtain the desired information. At the shop of a pharmaceutical chemist, where, on Sundays as well as on week days, prescriptions are made up for applicants, the address might have been obtained of a surgeon known to be at home, but it is fortunate that urgent

occasions corresponding exactly with that described do not very often arise.

The Sale of Indecent Publications: Another Prosecution.

At Bow-street recently, before Mr. Curtis Bennett, the Phœnix Press, Limited, were summoned for sending through the post a packet containing prints of an improper character, the subject matter of the prosecution being three copies of the periodical *Photo Bits*, dated Dec. 23rd and 30th, 1911, and Jan. 13th, 1912. Mr. Curtis Bennett, in imposing a fine of £10, with 20 guineas costs, observed that papers of this class were circulated amongst the young to the detriment of their morals, and that it was time that such a thing should be stopped. To his mind, from the first sheet to the last, these papers were produced for one purpose only—the suggestion of evil. The illustrations, one and all, were of a most suggestive and loathsome character, and to suggest that the directors of the company were not responsible was not fair to the manager, who was there to do what he was paid for.

We may add that in opening the case against the defendants Mr. Muskett had made particular allusion to the objectionable character of the advertisements inserted, and had referred to the fact that the Home Secretary on Jan. 23rd promised that a Bill would soon be introduced dealing with the whole subject, and had complained of the difficulty which, under the existing law, attends any attempt to punish promptly and effectively those responsible for publications of the class complained of. It will be noticed that the proceedings in question were brought under the Post Office Act in consequence of this difficulty. Those who hope to see the Home Secretary's promise fulfilled may be warned not to be too sanguine. In THE LANCET of Oct. 31st, 1908, comment was made upon the report of the Joint Select Committee which had then recently considered the whole question of indecent publications and of advertisements which recommend, under a veil of words too thin to deceive anyone, drugs intended to be bought by pregnant women for use as abortifacients. No Bill upon the subject has yet been introduced by Government, although it could hardly be one likely to excite violent opposition or of very great length or complexity.

The subject was referred to again more recently in THE LANCET of July 31st, 1909, when prosecutions instituted in respect of a paper named *Photo Fun* had resulted in convictions and the imposition of fines. *Photo Bits* was mentioned on this occasion during the prosecution of a newsvendor as the subject of a search warrant, so that its proprietors must have been aware, apart from their knowledge of its contents, that it was attracting the attention of the authorities. Their trade, however, is not likely to be seriously interfered with until objectionable matter in the body of a periodical and in its advertisements is fully defined in an Act of Parliament, and until power is given to inflict imprisonment upon summary conviction in aggravated cases upon those responsible for either publication or sale. Fines are of little avail, and when incurred by newsvendors are readily paid by those who make a profit by publishing this kind of garbage.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 94 largest English towns having an estimated population of 17,559,219 persons in the middle of this year, 9096 births and 6270 deaths were registered during the week ending Feb. 17th. The annual rate of mortality in these towns, which had steadily increased from 14·8 to 21·6 per 1000 in the four preceding weeks, declined to 18·6 in the week under notice. During the first seven weeks of the current quarter the mean annual death-rate in these large towns averaged 17·3 per 1000, while in London during the same period the annual death-rate did not exceed 16·6 per 1000. The annual death-rates last week in the several towns ranged from 6·2 in Southend-on-Sea, 8·5 in Hornsey, 9·2 in Wimbledon, 9·9 in Enfield, and 10·0 in Ilford, to 27·5 in Preston, 28·5 in Bath, 29·6 in West Bromwich, 35·1 in Great Yarmouth, and 37·5 in Dudley.

The 6270 deaths from all causes in the 94 towns were 1006 fewer than the number recorded in the previous week, and included 365, which were referred to the principal epidemic diseases, against numbers rising from 297 to 435 in the four preceding weeks. These 365 deaths from the principal epidemic diseases included 148 from whooping-cough, 69 from measles, 58 from infantile diarrhœa, 43 from diphtheria, 28 from scarlet fever, and 19 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases last week was equal to 1·1 per 1000, against 1·2 and 1·3 per 1000 in the two previous weeks. The deaths attributed to whooping-cough, which had steadily increased from 81 to 186 in the four preceding weeks, fell to 148 last week, and caused the highest annual death-rates of 1·8 in Bury, 1·9 in Devonport, 2·2 in Preston, 2·4 in Barrow-in-Furness, 3·2 in Merthyr Tydfil, and 3·9 in Walsall. The deaths referred to measles, which had been 72, 63, and 98 in the three preceding weeks, declined to 69 last week; the highest annual death-rates from this cause were 1·2 in Reading, 1·3 in York, 2·1 in Warrington, and 2·4 in Nottingham. The fatal cases of infantile diarrhœa, which had been 47, 67, and 49 in the three previous weeks, slightly rose to 58 last week, and included 19 in London and its suburban districts, 7 in Manchester, and 6 in Liverpool. The deaths attributed to diphtheria, which had been 53, 71, and 64 in the three preceding weeks, fell to 43 last week, and of this number 13 were registered in London and its suburban districts, and 3 in Portsmouth. The deaths referred to scarlet fever numbered 28, and were 6 in excess of the average in the six preceding weeks; 3 deaths were recorded in Liverpool, and 2 each in London, Stoke-on-Trent, Birmingham, Warrington, Leeds, and Aberdare. The fatal cases of enteric fever, which had been 13 and 16 in the two preceding weeks, further rose to 19 last week, and included 3 in London and 2 each in Stoke-on-Trent, Birmingham, Leeds, Sheffield, and Hull.

The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had been 1562, 1500, and 1512 in the three preceding weeks, had further declined to 1461 on Saturday last; 154 new cases of this disease were admitted to these institutions during the week, against 158, 169, and 178 in the three preceding weeks. These hospitals also contained on Saturday last 1148 cases of diphtheria, 390 of whooping-cough, 180 of measles, 55 of enteric fever, and 2 of small-pox. The 1564 deaths from all causes registered in London were 198 fewer than the number in the previous week, and were equal to an annual death-rate of 18·0 per 1000. The deaths referred to diseases of the respiratory system, which had steadily increased from 290 to 545 in the five preceding weeks, declined to 440 in the week under notice, but were 19 in excess of the number recorded in the corresponding week of last year.

Of the 6270 deaths in the 94 large towns, 195 resulted from different forms of violence, and 474 were the subject of coroners' inquests. The causes of 54, or 0·9 per cent., of the deaths registered last week were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Manchester, Sheffield, Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Nottingham, and in 57 other smaller towns. The 54 uncertified causes of death last week included 7 in Liverpool, 6 in Birmingham, 3 in West Bromwich, 3 in South Shields, and 3 in Gateshead.

HEALTH OF SCOTCH TOWNS.

In the 18 largest Scotch towns, having an estimated population of 2,182,400 persons in the middle of this year, 1108 births and 923 deaths were registered during the week ending Feb. 17th. The annual rate of mortality in these towns, which had increased from 17·3 to 22·8 per 1000 in the four preceding weeks, declined to 22·1 per 1000 in the week under notice. During the first seven weeks of the current quarter the mean annual rate of mortality in these towns averaged 19·2 per 1000, and was 1·9 per 1000 in excess of the mean rate recorded during the same period in the 94 large English towns. The annual death-rates in the several Scotch towns last week ranged from 12·2 in Leith, 12·9 in Clydebank, and 13·7 in Partick, to 25·7 in Glasgow, 26·8 in Greenock, and 33·2 in Perth.

The 923 deaths from all causes were 30 fewer than the number in the preceding week, and included 103 which were referred to the principal epidemic diseases, against 100 in each of the two preceding weeks. Of these 103 deaths, 63

resulted from measles, 14 from whooping-cough, 14 from infantile diarrhœal diseases, 6 from diphtheria, 4 from enteric fever, and 2 from scarlet fever, but not one from small-pox. These 103 deaths from the principal epidemic diseases were equal to an annual death-rate of 2·5 per 1000, or 1·4 per 1000 above that recorded in the 94 large English towns. The deaths attributed to measles, which had increased from 39 to 62 in the three preceding weeks, were 63 last week, and included 42 in Glasgow, 9 in Greenock, and 4 in Edinburgh. The deaths referred to whooping-cough, which had been 14 in each of the two preceding weeks, were again 14 last week; and of this number 3 deaths occurred in Glasgow, 3 in Greenock, 2 in Aberdeen, and 2 in Ayr. The fatal cases of infantile diarrhœa, which had been 11, 13, and 6 in the three preceding weeks, rose to 14 last week; 4 deaths were registered in Glasgow and 4 in Edinburgh. The deaths attributed to diphtheria, which had been 12 and 13 in the two previous weeks, declined to 6 last week, of which 3 were recorded in Glasgow. The 4 deaths referred to enteric fever were 2 in excess of the number in the previous week, and included 2 deaths in Glasgow. The 2 fatal cases of scarlet fever were registered in Glasgow and Kirkcaldy respectively.

The deaths referred to diseases of the respiratory system, which had steadily increased from 120 to 220 in the four preceding weeks, slightly declined to 209 in the week under notice; and 30 deaths were attributed to different forms of violence.

HEALTH OF IRISH TOWNS.

In the 22 town districts of Ireland, having an estimated population of 1,157,014 persons in the middle of this year, 679 births and 590 deaths were registered during the week ending Feb. 17th. The annual rate of mortality in these towns, which had steadily increased from 18·0 to 31·0 per 1000 in the seven preceding weeks, declined to 26 6 per 1000 in the week under notice. During the first seven weeks of the current quarter the mean annual death-rate in these Irish towns averaged 23·6 per 1000; in the 94 large English towns the mean annual death-rate during the same period did not exceed 17 3 per 1000, while in the 18 Scotch towns it was equal to 19·2 per 1000. The annual death-rates in the several Irish towns last week were equal to 23 9 in Dublin (against 18·0 in London), 33·1 in Belfast, 26 5 in Cork, 16·6 in Londonderry, 21·7 in Limerick, and 30·4 in Waterford; while in the 16 smallest of these Irish towns the death-rate last week was equal to 21·3 per 1000.

The 590 deaths from all causes in the 22 Irish towns were 98 fewer than the number in the previous week, and included 42 which were referred to the principal epidemic diseases, against 31 and 49 in the two preceding weeks; of these 42 deaths, 21 resulted from whooping-cough, 8 from measles, 8 from infantile diarrhœal diseases, 2 from enteric fever, 2 from scarlet fever, and 1 from diphtheria, but not one from small-pox. These 42 deaths from the principal epidemic diseases were equal to an annual death-rate of 1·9 per 1000; the death-rate last week from these diseases did not exceed 1·1 per 1000 in the 94 large English towns, while in the 18 Scotch towns it was equal to 2·5. The deaths attributed to whooping-cough, which had been 15, 15, and 25 in the three preceding weeks, declined to 21 last week, of which 17 were recorded in Belfast and 2 in Cork. The deaths referred to measles, which had been 2 and 5 in the two preceding weeks, rose to 8 last week, and included 4 in Cork and 3 in Dublin. The 8 fatal cases of infantile diarrhœa were equal to the number in the previous week; 4 deaths were registered in Dublin and 2 in Waterford. The 2 fatal cases of enteric fever were recorded in Belfast; those of scarlet fever in Limerick and Galway respectively; and that from diphtheria in Dublin.

The deaths referred to diseases of the respiratory system, which had steadily increased from 83 to 239 in the eight preceding weeks, declined to 212 in the week under notice. Of the 590 deaths from all causes in the 22 Irish towns last week, 181, or 31 per cent., occurred in public institutions, and 14 resulted from different forms of violence. The causes of 20, or 3·4 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 94 large English towns the proportion of uncertified causes of death last week did not exceed 0·9 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of Order in Council of April 1st, 1881, Fleet-Surgeon Alfred Harold Lissant Cox has been placed on the Retired List, at his own request (dated Feb. 6th, 1912).

The following appointments have been notified:—Fleet-Surgeon J. Shand to the *Shannon*, on recommissioning. Staff-Surgeons: J. C. Bringan to the *Victory*, for disposal; A. R. H. Skey to the *Roxburgh*; A. A. Sanders to the *Virid*, additional, for disposal, to be lent to the *Gossamer*, and for duty with the *Circe*, *Seagull*, and *Speedwell*.

THE ROYAL NAVAL VOLUNTEER RESERVE.

Donald John Forbes has been appointed Surgeon (dated Feb. 9th, 1912).

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel George F. Gubbin is placed on retired pay (dated Feb. 19th, 1912).

Major Anthony J. Luther to be Lieutenant-Colonel, vice G. F. Gubbin (dated Feb. 19th, 1912).

The undermentioned Majors to be Lieutenant-Colonels:—Robert J. Copeland, vice R G. Hanley, deceased (dated Jan. 30th, 1912). John Girvin, vice F. P. Nichols, retired (dated Feb. 9th, 1912).

The undermentioned Lieutenants are confirmed in their rank:—Hugh G. Monteith, John S. Levack, Tom C. R. Archer, Basil H. H. Spence, Edward S. Calthrop, Robert Davidson, Herbert S. Blackmore, James M. Elliott, Douglas W. Bruce, Richard T. Vivian, Edward G. H. Cowen, Leonard Buckley, William L. Webster, Stanley P. Sykes, Henry J. G. Wells, Ernest C Deane, Frank S. Tamplin, Ivor R. Hudleston, William Stewart, Alexander G. J. Macliwaine, and Arthur S. Heale.

Surgeon-General T. M. Corker has been appointed Principal Medical Officer of the Sixth (Poona) Division, vice Surgeon-General J. G. MacNeece, C.B., on transfer to the home establishment. Colonel M. W. Kerin, C.B., principal medical officer of the Seventh (Meerut) Division, has been appointed Principal Medical Officer of the Eighth (Lucknow) Division. Lieutenant-Colonel C. E. Nichol, D.S.O., commanding the station hospital at Maymyo, has on promotion been selected for appointment as Principal Medical Officer of the Presidency and Assam Brigades, vice Colonel E. Butt, transferred as Principal Medical Officer of the Seventh (Meerut) Division. Lieutenant-Colonel N. Manders, on return from Ceylon, has been appointed in charge of the Military Hospital at the Curragh and in command of No. 17 Company of the Royal Army Medical Corps, in succession to Lieutenant-Colonel G. F. Gubbin on retirement from the service. Lieutenant-Colonel R. H. Hall, senior medical officer at Bermuda, has been selected for the increased rate of pay under Article 317 of the Royal Warrant. Lieutenant-Colonel S. Hickson, on return from a tour of service in South Africa, has been selected for appointment to hold charge of the Cambridge Hospital at Aldershot.

Major I. A. O. MacCarthy has been appointed Recruiting Medical Officer in the London District. Major A. W. Bewley, lately commanding the station hospital at Landour, Mussooree Hills, has joined at Meerut Cantonment for duty. Major S. H. Withers has been transferred from Gharral to the Station Hospital at Ambala. Major J. J. W. Prescott, D.S.O., Adjutant of the Northumbrian Division, School of Instruction, Royal Army Medical Corps, at Newcastle, has been appointed to the Southern Command. Major J. P. Silver, from Edinburgh, has been posted to the Dublin District for duty. Major P. McKessack, on return from Mauritius, where he was employed as sanitary officer, has been appointed Sanitary Officer of the South Thames area of the Eastern Command, vice Major C. H. Stratton, whose tenure of the appointment has expired. Major F. A. Symons, from Ceylon, has joined for duty in the Southern Command. Major H. S. Taylor has arrived home for duty from the Straits Settlements. Major L. Wood and Major A. A. Seeds have embarked for a tour of service in India.

Captain J. Tobin, at present in charge of the Military Families Hospital at Devonport, has been placed under orders for service at Gibraltar. Captain E. W. Powell, on return from Aden, has been appointed to the Irish Command for

duty in the Cork District. Captain A. T. Frost, from the Royal Infirmary, Phœnix Park, Dublin, has been selected for attachment to the Royal College of Surgeons, Ireland, Contingent of the Senior Division, Officers Training Corps. Captain W. F. B. Loughnan, specialist in the prevention of disease Bareilly Brigade, has been granted eight months' leave of absence home. Captain R. L. Argles has joined the Station Hospital at Aden. Captain R. J. Buchanan has been transferred from the Military Hospital at Cosham to the Royal Victoria Hospital, Netley. Captain H. G. Sherren has been posted to the Aldershot Command on his return from India. Captain P. Davidson, D.S.O., has taken up duty as Adjutant at the Royal Army Medical Corps Depôt, Aldershot, in succession to Major F. S. Irvine, transferred to the London District and appointed Assistant to the Commandant, Royal Army Medical College, Grosvenor-road, London. Captain H. A. Bransbury has embarked for India.

The following lieutenants have been appointed for duty in the Irish Command:—R. T. Vivian, H. J. G. Wells, and W. L. Webster. Lieutenant W. A. Frost has been appointed to Tregantle from Devonport. Lieutenant R. C. Paris, from the Royal Victoria Hospital, Netley, has embarked for a tour of service in India. Lieutenant W. Bisset, from Hounslow, has been posted to the Royal Herbert Hospital at Woolwich. Lieutenant S. W. Kyle has been transferred from Jhansi to the Station Hospital at Jubbulpore. Lieutenant W. T. Graham, from the Military Hospital, Tidworth Park, Salisbury Plain, has joined at Birmingham. Lieutenant J. A. Manifold has embarked for a tour of service in Bermuda.

INDIAN MEDICAL SERVICE.

The King has approved of the admission of the undermentioned Lieutenants on probation (dated Jan. 27th, 1912):—Ronald Herbert Candy, Philip John Veale, Henry Hingston, Jamasji Cursetji Bharucha, Frederick Jasper Anderson, Heerajee Jehangir Manockjee Cursetjee, John Simson Stuart Martin, Peter Fleming Gow, Robert Victor Morrison, Jogesh Chandra Dey, James Walker Jones, and James Hall Hislop.

The King has approved of the confirmation of the commissions of the following Lieutenants on probation with effect from July 29th, 1911:—John Alexander Sinton, Edward Randolph Armstrong, Denis Fitzgerald Murphy, Charles James Stocker, Eric Edward Doyle, Cyril Macdonald Plumptre, Archibald Wallace Duncan, Leon Francis Brandenbourg, John Edward Scudamore, Henry Lewis Barker, Edward Austen Penny, and George Benkhorn Harland.

Surgeon-General W. B. Bannerman has been appointed an Additional Member of the Legislative Council of the Governor of Madras Presidency. Lieutenant-Colonel T. E. Dyson has been granted one year's leave of absence home from India. Lieutenant-Colonel A. Coleman has handed over charge of the duties of Superintendent of the Rawal Pindi District Jail to Captain C. A. Gill.

Major J. W. F. Rait has been granted an extension of furlough for four months by His Majesty's Secretary of State for India. Major M. Corry has handed over charge of the duties of Superintendent of the District Jail at Ludhiana to Captain J. G. Swan. Major W. E. Scott-Moncrieff, Agency Surgeon of the Second Class, Bengal Presidency, has been granted leave of absence home from India for two years. His Excellency the Governor of Bombay in Council has been pleased to appoint Major A. Hooton to officiate as Civil Surgeon at Poona, vice Lieutenant-Colonel J. B. Smith, proceeding on leave. Major E. S. Peck has assumed charge of the duties of Superintendent of the District Jail at Jullundur, vice Captain H. C. Keates. Major A. F. W. King has been appointed to officiate as Health Officer of the Port and Civil Administrative Medical Officer at Aden during the absence on leave of Lieutenant-Colonel S. E. Prall. Major G. Hutcheson, Civil Surgeon at Aligarh, has been granted six weeks' privilege leave of absence.

Captain W. M. Houston has been appointed to officiate as Medical Officer in charge of the Kathiawar Political Agency and in charge of the West Hospital at Rajkot. Captain R. B. S. Sewell, Surgeon Naturalist to the Marine Survey of India, has been appointed to officiate as Professor of Biology at the Medical College, Calcutta, during the absence on leave of Captain R. E. Lloyd. The services of Captain P. Heffernan have been placed at the disposal of the Government of Madras. Captain F. T. Thompson has been granted six months' leave of absence on the recommendation of a medical board. Captain J. E. Clements has been appointed to officiate as Superintendent of the Central Jail at Fategarh, vice Lieutenant-Colonel E. Jennings, granted leave. Captain M. J. Quire has been appointed Professor of Materia Medica at the Madras Medical College. The services of Captain C. C. Shaw have been placed at the disposal of the Chief Commissioner of the Central Provinces. Captain W. P. G. Williams has been appointed to officiate as Superintendent of the Central Jail at Bareilly during the absence on leave of Major C. B. Prall. Captain R. B. Nicholson has been granted one year's leave of absence home from India. Captain J. W. McCoy has been appointed Civil Surgeon at Dinajpur.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

The undermentioned Lieutenants are confirmed in their rank:—Gilbert K. Aubrey, Charles C. Jones, and Henry M. Buchanan.

TERRITORIAL FORCE.

Royal Army Medical Corps.

2nd East Lancashire Field Ambulance, Royal Army Medical Corps: Lieutenant Thomas Carnwath resigns his commission (dated Feb. 14th, 1912).

2nd West Riding Field Ambulance, Royal Army Medical Corps: Lieutenant Charles W. Eames to be Captain (dated Jan. 1st, 1912).

3rd Welsh Field Ambulance, Royal Army Medical Corps: The undermentioned officers to be Captains (dated Dec. 25th, 1911):—Lieutenant Daniel E. Evans and Lieutenant Ernest Brice. Lieutenant George D. E. Jones to be Captain (dated Jan. 7th, 1912).

4th Northern General Hospital, Royal Army Medical Corps: The undermentioned officers resign their commissions (dated Feb. 14th, 1912):—Captain John T. Collier, Captain Harold C. Harrison, and Captain Percy C. Phillips.

3rd West Riding Field Ambulance, Royal Army Medical Corps: Captain (Honorary Captain in the Army) Frederick A. Hadley to be Major (dated Nov. 15th, 1911).

1st South Midland Mounted Brigade Field Ambulance, Royal Army Medical Corps: Lieutenant Thomas H. Forrest to be Captain (dated Jan. 31st, 1912).

3rd London General Hospital, Royal Army Medical Corps: The under-mentioned officers resign their commissions (dated Feb. 21st, 1912):—Lieutenant-Colonel Sir Thomas Barlow, Bart., K.C.V.O., Major Augustus J. Pepper, Captain Henry A. Caley, Captain Horace S. Collier, and Captain Rupert T. H. Bucknall.

2nd London Sanitary Company, Royal Army Medical Corps: Percy Norman Cave to be Lieutenant (dated Jan. 9th, 1912).

Attached to Units other than Medical Units.—Lieutenant John C. S. Burkitt to be Captain (dated Nov. 15th, 1911). Lieutenant Reginald W. Ironside resigns his commission (dated Feb. 21st, 1912). Captain John A. Gibb resigns his commission (dated Feb. 21st, 1912).

For Attachment to Units other than Medical Units.—James Hamilton (late Captain, 5th Battalion, The Queen's Own (Royal West Kent Regiment) to be Captain (dated Feb. 3rd, 1912) Douglas Larmer Wall to be Lieutenant (dated Feb. 21st, 1912).

ROYAL ARMY MEDICAL CORPS (EASTERN COMMAND) TRAINING STAFF TOUR.

The following officers of the Royal Army Medical Corps stationed in the Eastern Command have been directed to attend a staff tour to be held at Guildford from Feb. 26th to 29th:—Lieutenant-Colonel M. O'Halloran, in charge of the Military Hospital at Canterbury; Lieutenant-Colonel F. S. Le Quesne, V.C., in charge of the Auxiliary Hospital at Woolwich; Major F. W. Begbie (Colchester), Major J. C. Jameson (Woolwich), Major H. E. Staddon (Shorncliffe), Major M. M. Rattray (Brighton), Major R. H. Fuhr, D.S.O. (Woolwich), and Major E. B. Knox (Norwich). The object of the tour is chiefly to study the modification which the recently introduced system of supply and transport may entail in the working of the medical services on active service.

The King has fixed Saturday, June 22nd, for an inspection of the St. John Ambulance Brigade in Windsor Park.

Correspondence.

"Audi alteram partem."

LEISHMANIA AND MOSQUITOES.

To the Editor of THE LANCET.

SIR,—Captain J. Hay Burgess, I.M.S., in a criticism of Professor Franchini's work, to which he himself will answer if he thinks it necessary, uses the following sentence: "I note that such is the heading of his article. *Leishmania infantum and Leishmania donovani are not synonymous terms.*" As Professor Franchini, voluntary assistant in my institute, has published other contributions on leishmania, cultivated from spleen juice of kala-azar patients, it is well that Captain Hay Burgess should know: 1. I have found in Sicily and in Calabria cases of kala-azar in youths (13 to 18 years old) and among grown-up people (38 years old). Dr. Spagnolio has found the disease in a man 34 years old, and Dr. Tropeano in a girl 20 years old. 2. That the symptoms and the morbid anatomy correspond to those of Indian kala-azar. 3. That the researches of Longo (Clinica Pediatrica of the University of Catania) have shown that the leishmania of our kala-azar *lives in all those mediums in which develops Leishmania donovani.* 4. That the only difference between Indian leishmania and the Italian-Tunisian form lies in the fact that dogs cannot be infected with the first one. This has been admitted also by Nicolle in one of his letters, which I have published. Now what importance the experiment by Patton on dogs has in order to show the difference of the two parasites I have shown already in my note,[1] and I have repeated it on more than one occasion.

I, who have been occupied for three years in studying this problem of vital interest for South Italy, am of opinion that the two kinds of leishmania are (1) morphologically identical; (2) they develop in the same medium of culture; (3) they produce in monkeys the same infection; (4) they produce in man the same symptoms and the identical morbid anatomy. The clinical picture among us is more easily to be observed in children than in India. The disease shows also in Italy "epidemic recurrences" (spring).

The "Leishmania infantum Pianese" appears identical with "Leishmania infantum Nicolle"; according to my own studies and to other ones, Leishmania infantum and Leishmania donovani are synonymous.

The leishmania of the "*ponos*," a children's disease, which I have discovered to be nothing else than kala-azar, was shown in Greece to be the same as the leishmania which Cristomanos, Aravantinos, and others found in Greece among *grown-up people.* It is necessary to add that whilst Nicolle did not find cases in grown-up people in Tunisia, Dr. Tashin Bey found at Tripoli a young man aged 19 suffering from kala-azar. How can one write in my own cases, in those of Spagnolio, Cristomanos, Tashin, of a Leishmania infantum?—I am, Sir, yours faithfully,

Prof. Dr. UMBERTO GABBI,
Director of the Section of Tropical Diseases at the Medical Clinic of the University of Rome.

Rome, Jan. 26th, 1912.

To the Editor of THE LANCET.

SIR,—I notice in THE LANCET of Jan. 13th, p. 123, a letter by Captain J. Hay Burgess, I.M.S., in which he comments upon a paper of mine on the Leishmania in Mosquitoes, and I hope you will permit me to make the following brief reply, which will be given in greater detail in an article appearing in a future number of the *Annals of Tropical Medicine and Parasitology.*

It appears to me that Captain Burgess has either not read my paper carefully or he has not quite understood what I wished to express. I have stated elsewhere that I have read repeatedly the well-known researches of Captain W. S. Patton, but I cannot understand how Captain Burgess could possibly compare my researches on the A. maculipennis (1911)[2] and the later ones on some culicidæ, including S. fasciata (1911)[3] with those of Captain Patton on Anopheles stephensi and Culex fatigans. It must be remembered that A. stephensi is not found in Europe at all, and that C. fatigans is found only in Malta as regards European countries.

According to Captain Burgess it would appear natural that the same parasites found in A. stephensi should likewise be met with in A. maculipennis. It may well be that he has found flagellate and post(?) flagellate forms in C. fatigans, but this has no bearing on my researches. I have repeatedly and very clearly stated in my papers that I have made *numerous control experiments* in which I have *never* found *any* parasites such as were described from the insects found on the cultures. I have also stated that I have found, in smears made from mosquitoes which had been fed on cultures, small round or oval forms identical with those from individuals infected with kala-azar. Is it possible to mistake these small round oval forms for herpetomonas?

As regards the other experiments, it would have been better if Captain Burgess had more carefully read the last portion of my article published in THE LANCET, where I said that more sections of mosquitoes, and still further experiments with the non-flagellate parasites contained in the splenic juice, as well as animal experiments, &c., have to be made.

I should like to draw Captain Burgess's attention to the fact that it is possible to transmit the disease to animals by means of cultures of the parasite from the Mediterranean. My researches have only just commenced, and will be resumed as soon as possible; they had to be discontinued because of the scarcity of mosquitoes owing to the decrease in temperature. As regards the nomenclature of L. donovani and L. infantum, I cannot accept the statement that "Leishmania infantum and Leishmania donovani are not synonymous terms," since he does not give any plausible proof. Meanwhile I can affirm that the leishmania of the Mediterranean can be cultivated in Novy-MacNeal-Nicolle's medium as well as in citrated blood, that the morphology is the same, that the clinical picture and prognosis of the disease are the same, and also that during the last year a youth, 18 years of age, died in Rome from kala-azar, which has not been the first and only case.

It can, therefore, be easily understood that the problem is a complicated one which is evidently not to be solved with a few words, as Captain Burgess apparently desires.

I am, Sir, yours faithfully,

Liverpool, Feb. 15th, 1912. Professor G. FRANCHINI.

[1] U. Gabbi: About Kala-azar (Il focolaio endemico di Bordonaro). Arch. delle Malattie trop. dell' Italia meridionale, vol. i., 1910, Rome.
[2] Franchini, G., THE LANCET, Nov. 4th, pp. 1268-1269.
[3] Franchini, G., Riv. Crit. Clin. Med. Firenze, XII., No. 45.

THE "RADICAL" OPERATION FOR MALIGNANT DISEASE OF THE TESTICLE.

To the Editor of THE LANCET.

SIR,—I have read with interest the paper in THE LANCET of Feb. 17th by Mr. H. Morriston Davies, entitled "Malignant Disease of the Testicle and the Treatment of it by Radical Operation." His summary of Nicholson's paper on the pathology of new growths of the testicle is excellent, and everyone will agree with him in his plea for the early recognition of this very grave form of malignant disease. The chief object of the paper, however, is to urge upon surgeons the adoption of a "radical operation" "unless the lumbar glands are extensively involved or there are evidences of metastases elsewhere"; indeed, his final point is that under these circumstances this "radical operation" "must be done." May I use your columns to ask Mr. Morriston Davies to give surgeons some firmer ground to rest upon than he has at present furnished? It is not enough to point to the known frequency of recurrence after simple castration, nor to show by the record of his own case that a certain form of extensive operation is feasible—"the patient returned home three weeks after the operation." What we need to be informed of is the *final result* of these "radical operations." Mr. Morriston Davies's own case was operated upon on April 5th, 1911—only ten months ago—and I infer that he is known to be free from all sign of recurrence *thus far*, but it would be a satisfaction to be distinctly told even this, and still more satisfactory to be told what is known of the other 13 cases of this operation to which he makes reference, the earliest of which, if cured of his disease, has now lived about seven years since the operation. I ask for details of 14—not 13—operations because, in spite of his footnote, I hardly

think Mr. Morriston Davies does my colleague Mr. J. Bland-Sutton justice in excluding his case from the list. The record of operations for malignant disease as mere surgical procedures is one thing; the right to attach the words "radical" or "ideal" to such operations is quite another. Surgeons know that Grégoire's operation can be done with safety by careful operators. What they want to know is the final (not immediate) result of this operation—its influence upon the course of the disease. Mr. Morriston Davies leaves us to suppose that all of the 13 (or 14) cases to which he refers justify his use of the word "radical" by having been permanently cured by the operation. Is this the fact? I ask for information, and by no means as a convinced opponent of this operation.

Mr. Morriston Davies refers to the general practice of surgeons in operating for malignant disease of the tongue and breast, and says: "There is no reason why the same radical treatment should not be adopted in cases of malignant disease of the testicle." In saying this, I think he has overlooked the difference in the usual clinical course of the disease in these different organs. Cancer of the tongue very often remains limited to the tongue and adjacent parts, and to the primary glands and the tissues around them, not only for months, but even throughout the whole course of the disease. Cancer of the breast, too, quickly infects the primary glands in the axilla, but in many cases does not spread further along the lymphatics for a long time. It is this great fact of the limitation of the disease to the area of operation that justifies, and explains the success of, our operations upon cancer of the tongue and breast. We cannot speak in similar words of malignant disease of the testicle; not only are the primary glands speedily infected and become the seat of very active growth, but the frequency and rapidity with which the disease spreads to the secondary glands, and further still, warn us not to rest our case for operation solely upon the results we obtain in operating for cancer of the tongue and breast.

However, I hope that Mr. Morriston Davies can reassure me on this point, and that, having recently looked up the records of all the published cases of this operation, he can tell us that a large proportion of them are living without sign of recurrence.—I am, Sir, yours faithfully,

ALFRED PEARCE GOULD.

Queen Anne-street, W., Feb. 19th, 1912.

THE VALUE OF SHORTCIRCUITING THE COLON FOR SEVERE CONSTIPATION.

To the Editor of THE LANCET.

SIR,—I should like to bring to the notice of the medical profession the very beneficial effects of Mr. Arbuthnot Lane's operation for the cure of chronic constipation as experienced by myself. Ever since an attack of typhoid fever when I was 18 (30 years ago) I have suffered from constipation of a very severe kind. During this period I have rarely had my bowels moved without aperients or enemata. Frequently I have gone a week without any action at all, and always the motion was hard and dry like sheep's dung. Along with this constipation I have suffered from dyspepsia, with its accompanying flatulence and acidity and general gastric discomfort. During the last four or five years my symptoms became much worse and it was with difficulty that I was able to continue my work.

In the autumn of 1908 I had a sudden attack of severe pain in the right hypochondrium which persisted for some days. I consulted a specialist who suspected that I had a duodenal ulcer. He called in a surgeon who opened the abdomen and found a large ulcer on the posterior wall of the duodenum. He did a gastro-enterostomy and I made a good recovery from the operation. For a time my symptoms were much relieved, but after six months the old symptoms of constipation, flatulence, &c., returned as badly as ever, and I had to give up work I became so ill. I consulted the same specialist again, who prescribed a raw, or practically raw, minced meat and minced chicken diet, with 30 c.c. of normal horse serum daily. This made me much worse, the pulse coming down to 44 and the temperature falling to 96° F.

I then lived for some months on a diet of milk, eggs, boiled fish, and toast. I was quite unable to digest anything else, but I got no better, so I consulted another surgeon who said he could do nothing without opening the abdomen again. This he did, and found the duodenal ulcer quite healed, but he found the appendix very much diseased, and he removed it. He told me he expected this had been the cause of my symptoms and that many cases got better after the removal of such an appendix. He also closed my pylorus. I again made a good recovery after the operation and for seven or eight months I did fairly well, but I always had a great deal of flatulence and often felt sick, which was a new symptom. I noticed the constipation was gradually coming back again, so I went to Harrogate and was instructed on the method of douching out the colon with large saline injections. This treatment relieved the constipation, but gave me so much pain, particularly in the region of the ascending colon, that I had to discontinue it.

I next tried dieting myself as recommended by Dr. A. F. Hertz in his book on "Constipation," eating porridge, wholemeal bread, with plenty of fruit and cream, and I persisted in this treatment for several months (December, 1910, to April, 1911). The constipation was certainly better, but I became weak and ill, and soon nervous symptoms developed which I had never had before. My thighs and calves were numb at times; at others I felt a feeling of pins and needles in the same parts. Towards the end of April, 1911, I completely broke down and was unable to do anything, so I consulted Mr. Lane, who sent me to Dr. A. C. Jordan to have the alimentary tract examined by means of the X rays. I was given a meal of 6 oz. of carbonate of bismuth, and this was carefully watched in its passage through the whole alimentary canal. The stomach was a little dilated but was vigorous in action, and the gastro-jejunostomy was working well. There was great delay in the passage of the bowel contents through the ileo-cæcal valve, and the terminal coil of the ileum appeared to be firmly adherent to the adjacent bone. There was also delay in the transverse colon, which hung down into the pelvis like a garland. The rectum was much elongated and in the form of a double S. On receiving Dr. Jordan's report Mr. Lane said another operation was necessary, so I placed myself entirely in his hands. He operated on me and found the last two inches of my ileum tightly bound down and very much constricted by a strong broad mesentery. He divided the ileum and put it directly into the rectum. The ileum showed very definite evidence of the chronicity of the obstruction. I made a very good recovery after the operation, and was able to return to work in ten weeks.

Now what benefits have I derived from the operation? 1. I now have a daily action of the bowels. At first there were several motions a day, but now things have become nearly normal. There is still a tendency to constipation, but this is easily remedied by fruit or some very mild aperient. It has been said that Mr. Lane's operation produces a state of chronic diarrhœa; I have not found it so. 2. The nervous symptoms mentioned before have completely disappeared and I sleep much better; formerly the insomnia I suffered from was very distressing. 3. My appetite has returned; indeed, it is almost too good, and I can eat an ordinary diet in moderation—a thing all dyspeptics will appreciate. 4. The principal benefit, however, is that I feel so well. I was an absolute physical wreck when I went to Mr. Lane in May; now I feel fitter and better than I have done for years.

I am, Sirs, yours faithfully,

F. P. BREMNER, M.B. Edin.

Lower Clapton-road, N.E., Feb. 20th, 1912.

PS.—I may say that both the surgeons who performed the previous operations were eminent men in the profession, so whatever they did was well done.

THE FATE OF THE APPENDIX AFTER ABSCESS FORMATION.

To the Editor of THE LANCET.

SIR,—Under this title an interesting paper by Mr. A. P. Dodds-Parker on the advantages of removal of the vermiform appendix in abscess cases appeared in THE LANCET of Feb. 10th, and has been followed by letters from Mr. Douglas Drew and Mr. H. J. Godwin in your issue of Feb. 17th. All the writers are agreed that in these cases the appendix is seldom destroyed by the disease or the suppuration that follows, and should be removed when the patient has recovered from a drainage operation. It is because the operation performed in the Royal Victoria Infirmary,

Newcastle-on-Tyne, where I was house surgeon, differs so materially from those advocated that I have ventured to offer a brief note as to the practice here.

A paper on "The Diagnosis and Treatment of Abscess in connexion with the Vermiform Appendix," by Professor Rutherford Morison, published 11 years ago in THE LANCET (Feb. 23rd, 1901), has been overlooked by your contributors, and as a large experience has confirmed the truth of the views he then expressed I should like to draw further attention to them. At the end of this paper he draws the following conclusions:—

> The diagnosis (of abscess) is based upon the history of an acute attack of appendicitis and the presence of a definite tender lump. The position of the appendix and the relations of the abscess may be foretold by a careful study of the tumour. (Every old house surgeon of Mr. Morison can fully bear this out, and the fact is insufficiently recognised, as it is most helpful in prognosis and treatment.) ..... Early operation is the proper treatment, and with few exceptions the vermiform appendix should be removed at the same time as the abscess is drained (pelvic cases form the chief exceptions to this rule).

A warning as to this is offered in the same paper in these words:—

> The operation should be done with the object of draining the abscess and removing the appendix, and, to do this safely, undoubtedly requires care and some practice. It also demands that the patient should not be too seriously ill to tolerate a fairly long operation; that skilled assistance should be available; and that the surroundings can be so adapted as to approach a hospital standard.

No detail of the operation then described has been altered, except that the catgut sutures are reinforced with silkworm-gut and that the amount of gauze used for drainage purposes has been diminished or altogether omitted. Later Mr. Morison[1] reports that he had operated on 110 consecutive cases on these lines without a death, and I recently collected statistics for him,[2] showing that 157 abscess cases had been operated upon in the Royal Victoria Infirmary without a death during the year 1910.

I am, Sir, yours faithfully,

Newcastle-on-Tyne, Feb. 18th, 1912. CHARLES F. M. SAINT.

KING EDWARD'S HOSPITAL FUND FOR LONDON AND THE EVELINA HOSPITAL.

To the Editor of THE LANCET.

SIR,—In justice to my committee I trust you will find space for this reply to the letter from the honorary secretaries of King Edward's Hospital Fund, which you have published in your issue of to-day. Their communication will, I fear, give the impression that my committee have deliberately departed from the uniform system of hospital accounts; this is not the case. It must be remembered that the legacy in question was absolutely unconditional, and *not* specified as being for the general purposes of the hospital. My committee, however, as a precaution sought legal advice, and ascertained that it would be a perfectly legitimate transaction to allocate it to the Samaritan fund. This legacy was then dealt with in accordance with a regulation of the King's Fund (No. 7 on p. 12 of their red book), which exactly applies to the case. This course has been approved by the hospital auditor who signed the accounts.

Paragraph 3 of the honorary secretaries' letter states that my committee have full power to apply the legacy to the general purposes of the hospital. Granted; but, having regard to the conditions just mentioned, they have also equal power to allocate it to any other object which is for the benefit of the hospital. If the committee of the King's Fund would be just in dealing with this matter, they must admit that it is not merely a question of hospital accounts, but also the strict interpretation of the wording of a will.

The letter from the honorary secretaries cannot fail to create the impression that my committee by their action wish to conceal the purposes for which the income of the Samaritan Fund is used. To this I must give a complete denial, and would point out that the authorities of the King's Fund know full well that the accounts of all special funds are published in our annual report, and are therefore open to the inspection and criticism, not only of the subscribers, but of anyone who may obtain a copy of the book.

In managing the affairs of this institution, which is the only large hospital for children in the whole of South London, my committee's only desire is to do, with the means at their disposal, the greatest amount of good for the sick poor, and by their straightforward policy hope to elicit the sympathy and support of the public.

Sincerely thanking you for your kindness and courtesy in publishing my other letter,

I am, Sir, yours faithfully,

D. MALCOLM SCOTT,

Feb. 17th, 1912. Chairman of the Committee of Management.

[1] An address delivered at Halifax on Oct. 7th, 1903. See Northumberland and Durham Medical Journal for 1904, p. 263.

[2] Brit. Med. Jour., Oct. 28th, 1911; and THE LANCET, Dec. 16th, 1911, p. 1683.

THE BIRTHPLACE OF LORD LISTER.

To the Editor of THE LANCET.

SIR,—I am writing in the room in which Lord Lister was born at Upton on April 5th, 1827. The house is, as you state in your obituary notice, now the Vicarage, and the Church of St. Peter is built upon a portion of the garden in which the great surgeon played as a boy. To the completion of this church Lord Lister himself contributed a few years ago, and we who worship in it think that it is a fitting home for a memorial to him, and that the best form that the memorial could take—of one who did more than any other man has done to alleviate suffering and to save human life—would be a rood screen with the figure of the Saviour of the World, and to this the character of the church is peculiarly adapted. We are all poor people here and cannot carry out our wish unaided. I therefore ask you of your courtesy to allow me to appeal through your columns for donations for this purpose—they could be given as a thankoffering in many cases for benefit received, as well as to perpetuate, on the scene of his birth, the memory of one who has placed the whole world under an obligation. I am, Sir, yours faithfully,

F. K. HODGKINSON, Vicar.

St. Peter's Vicarage, Upton, Essex, Feb. 16th, 1912.

PUBLIC HEALTH IN GRAND CANARY.

To the Editor of THE LANCET.

SIR,—Some report having appeared in the press regarding the prevalence of epidemic disease, I should be greatly obliged if you will give publicity to the fact that this island is, and has been, particularly free from infectious disease of any kind, the report being therefore quite without foundation. Visitors and invalids can enjoy the advantages of this delightful climate under as healthy conditions as exist anywhere. I am, Sir, yours faithfully,

W. M. M. JACKSON, M.D., D.P.H.

Las Palmas, Grand Canary, Feb. 10th, 1912.

FATALITIES FOLLOWING THE INTRAVENOUS INJECTION OF SALVARSAN.

To the Editor of THE LANCET.

SIR,—A correct appreciation of the value of salvarsan in syphilis, its efficacy in treatment, and the risks incurred, can only be attained by a careful consideration of all the aspects of the case. In THE LANCET of Jan. 20th (p. 152) you published an article by Mr. Willmott Evans in favour of salvarsan when employed with due care, and in your issue of Feb. 3rd (p. 283) you printed a valuable paper by Mr. Arthur Foerster, who has employed the drug widely, and who, with a recognition of its value, is also very certain that its use is by no means free from danger. In your issue of Jan. 20th (p. 153) Dr. J. H. Sequeira laid stress on the use of redistilled water in the preparation of the salvarsan for intravenous injection. It is certain that many precautions are needed to obtain the best results. You have referred[1] to fatal cases in which epileptiform convulsions and death occurred in young and strong patients after the intravenous injection of an ordinary dose of salvarsan. In those in which a necropsy was made hæmorrhagic encephalitis was found.

At the Académie de Médecine of Paris Professor Gaucher, who has succeeded Fournier as the leader of the French school of syphilography, referred recently to two fatal cases at the Saint-Louis Hospital. In one, a strong

[1] THE LANCET, Dec. 23rd, 1911, p. 1785.

country youth, in excellent health, contracted syphilis a month after going to Paris. A month later he came under the care of M. de Beurmann with an indurated chancre and double inguinal adenopathy. Examination of his organs revealed nothing abnormal and the urine did not contain albumin. On Sept. 18th an intravenous injection of 60 centigrammes of salvarsan was given with the usual aseptic precautions. There were no immediate symptoms, but after 15 minutes he was seized with vertigo and a feeling of heat. During the day he vomited abundantly, and in the evening his temperature was 100·7° F. On the following day he was quite well. On the 21st the injection was repeated under the same conditions as before. The same solution was used for the injection of another patient, who experienced no ill effects. At first the injection seemed to be well borne, but in the afternoon the patient was seized with vertigo, headache, and vomiting. The evening temperature was 101·5°. During the night he vomited again and complained of pain in the epigastrium. On the 23rd, while asleep, he uttered a cry like the bark of a dog and was seized with epileptiform convulsions, first tonic, then clonic. He bit his tongue and foamed at the mouth. At 4 P.M. he was comatose and made incoördinate movements. The pupils were dilated and immobile, and the face was pale and covered with sweat. The respiration was stertorous, the pulse 110, and the temperature 99·1°. At 4 A.M. on the 24th he died. At the necropsy the heart, great vessels, and lungs were found normal. So were the abdominal organs, except the kidneys, which were much enlarged, hard, congested, and of the colour of wine lees. The capsules were not adherent. Microscopic examination showed acute nephritis with epithelial degeneration and destruction of the tubules. The brain and meninges were normal to the naked eye. Professor Gaucher concluded that the patient died from uræmia, the result of arsenical poisoning. He considered salvarsan a dangerous drug, which should be used with the greatest care and reserved for cases in which mercury is badly borne or is without effect.

At a meeting of the Académie on Nov. 21st Professor Gaucher reported two more cases in which salvarsan had proved fatal. In one, communicated to him by Professor Oltramare, of Geneva, a robust man, aged 48 years, who had contracted syphilis 15 years before, desired an injection of salvarsan, although he had no symptoms. A complete examination revealed no sign of cardiac, renal, or nervous disease. On August 17th he was given an alkaline intravenous injection of 60 centigrammes of salvarsan. When seen again on the 19th he declared that he had well borne the injection and was quite well. On the 20th he complained of slight headache, and on the 21st he was found lying on the floor of his room. A medical man was summoned and found him unconscious, with convulsive movements, elevated temperature, and violaceous face. He remained in this state on the following day, and had several attacks of convulsions. He was covered with sweat and cyanosed. The pulse and respiration were rapid, the pupils were first dilated, then contracted, the temperature rose to 104 9°, and he died at midnight. The necropsy showed lepto-meningitis, scars on the ascending aorta, fatty degeneration of the heart, chronic bronchitis, and broncho-pneumonia of the lower lobes.

In another case, communicated by Dr. Caraven, of the Medical School of Amiens, a strong man, aged 21 years, who had just passed for the military service, came to hospital with a chancre. There were no signs of visceral disease and the urine did not contain albumin. On Oct. 11th an intravenous injection of 60 centigrammes of salvarsan was given and was well borne. On the 18th the injection was repeated and was equally well borne. But on the 20th the patient complained of headache, which was worse on the 21st. On the 22nd there were symptoms of meningitis—delirium, carphology, rigidity of the neck and upper limbs, and Kernig's sign. The respiration was stertorous and the pulse was 112. The pupils were slightly dilated, the eyes half open, and the conjunctivæ much congested. The face and nails were cyanosed and the patient was comatose. Lumbar puncture yielded cloudy, amber-coloured fluid. The urine contained 2 3 grammes of albumin per litre. In the afternoon he sweated profusely and there was Cheyne-Stokes respiration; the temperature rose to 104·2°. In the evening he died. The necropsy showed intense congestion of the brain and lungs. The kidneys were red and soft. The stomach presented a diffuse hæmorrhage.

It is now I think impossible to explain away all the fatalities by attributing them to errors of technique or use of this drug in unsuitable cases, as has been attempted by Ehrlich and his followers. To me it seems that there is incontrovertible evidence that the remedy is dangerous and may prove fatal to young strong patients. It is too soon, I consider, to estimate the position which will finally be given to salvarsan, but not too soon for emphasising its dangers, especially as they may present themselves to the general practitioner.

I am, Sir, yours faithfully,

M.D.

THE MEDICAL LIBRARY ASSOCIATION OF AMERICA.

To the Editor of THE LANCET.

SIR,—I have just read with interest the annotation on the Medical Library Association in THE LANCET of Jan. 13th. If you will permit me to correct an error, I believe conditions in this country are the same as in England—that is, we have some few large libraries and a number of small ones. In the large libraries it is "all give and no take," as the smaller libraries have nothing, or next to nothing, to contribute, while the larger libraries have hundreds of duplicates.

We have been endeavouring to develop an altruistic spirit in the medical libraries in this country, and, judging from the work in our Exchange, I think we are succeeding. I want to thank you for your kind words concerning our association and the *Bulletin*.

I am, Sir, yours faithfully,

JOHN RUHRÄH,
Treasurer.

Baltimore, Feb. 5th, 1912.

THE MEDICAL PROFESSION AND THE NATIONAL INSURANCE ACT.

To the Editor of THE LANCET.

SIR,—In the National Insurance Act, published by authority, at p. 135, Fourth Schedule, Part II., Additional Benefits, para. 1 runs as follows:—"Medical treatment and attendance for any persons dependent upon the labour of a member." This evidently includes wives and children who are not themselves workers. Does it apply only to relatives of members of approved societies? And what is the scale of remuneration for such medical treatment and attendance? Is it left for the Insurance Commissioners to arrange? Can any of your readers explain?

I am, Sir, yours faithfully,

W. J. LE GRAND, M.D. R.U.I.

Blackwell, near Alfreton, Feb. 14th, 1912.

To the Editor of THE LANCET.

SIR,—May I be allowed to refer to a section of the National Insurance Act to which nobody seems to have given much attention, but which is of very great importance to all medical men practising in seaport towns? The section has, I think, never been referred to in the correspondence in your columns; it does not seem to have been brought up before the Council of the British Medical Association, for it is nowhere referred to in their recently issued "Report"; it has apparently escaped the notice of the eminent counsel consulted by the *Practitioner;* it is not noticed in the "Reform Committee's" "proposal for an amended Act," and in the "tabulated list of clauses" published by you in your number of Feb. 10th the number of the section is divorced from its contents, yet it is the only section of the Act which gives a direct negative to one of the "six cardinal points."

The section referred to is Section 48, "special provisions for the mercantile marine," and the especially interesting subsections are:—

(4) The Board of Trade shall ..... cause a society to be formed, t be called the Seamen's National Insurance Society, of which any masters, seamen, and apprentices to the sea service and the sea fishing service who are employed within the meaning of this ..... Act shall be entitled to become members.

(5) The affairs of the S.N.I.S. shall be managed by a committee ..... comprising representatives of the Board of Trade, of shipowners, and of members of the society in equal proportions, and the society shall, notwithstanding anything in this ..... Act, become an approved society.

(12) Members of the S.N.I.S. shall be deemed to reside in England, and the *medical benefit* of such *members* shall be *administered* by *the*

society instead of by the Insurance Committee; ..... but nothing in this provision shall prevent the society agreeing with Insurance Committees for the administration of those benefits by the Committee in relation to *individual* members of the society.

That this new society will become an extremely rich and therefore powerful and attractive one is rendered probable by the fact that, whilst the calls upon it for benefits will be small owing, under 48 (1), to neither sickness nor disablement benefit being paid to its members in respect of any period during which the owner of the ship is, under the Merchant Shipping Act, 1894, liable to provide medicine, attendance, and maintenance, at the same time, by 48 (6), the whole of the contributions paid by employers in respect of masters, seamen, and apprentices who are neither domiciled nor have a place of residence in the United Kingdom will be credited to the society. And yet the medical benefit of this powerful society is to be entirely under lay control, and not a single representative of the medical profession is to be allowed to have a place on the committee of management.

Can anyone say in face of the direct prohibition in this section that it is still possible to obtain the six points by arrangement with the Insurance Committees?

I am, Sir, yours faithfully,

Ramsgate, Feb. 17th, 1912. FRANK MILTON.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Late Lord Lister.

IT was appropriate and right that a religious memorial service should be held in Edinburgh simultaneously with the service which was held in Westminster Abbey on the day of the burial of Lord Lister. The service was held in the ancient church of St. Giles; it was attended by the Lord Provost and magistrates of the city in their official robes; by the University, led by the Principal, Sir William Turner; by the Royal College of Physicians, represented by the Council and many of the Fellows; by the Royal College of Surgeons, represented by its Council and a large number of its Fellows; and by members of the profession belonging to neither college. The students were present in considerable numbers, and were officially represented by members of the Students' Representative Council. There were also present a large number of non-medical members of the community. The service was conducted by the Rev. Dr. Wallace Williamson, assisted by one of the University professors from the Faculty of Divinity, and one from the New College. The service was short, simple, and dignified. The anthem selected was the passage beginning "What are these that are arrayed in white robes," and ending with the passage, "And God shall wipe away all tears from their eyes," which was rendered with great beauty by the choir. The address was delivered by the Rev. Dr. Wallace Williamson, and showed a wide and deep understanding and appreciation of the great work Lister had done, and an intimate knowledge of what Lister was as a man. He concluded an address worthy of the occasion as follows: "The whole world stands debtor to Joseph Lister to-day. The whole world offers grateful homage to his memory. It is in this spirit we meet to-day. In humble gratitude for a whole life devoted to the highest and purest aims, for the splendour of his example, for his courage and tenderness, as well as for his undying gift to humanity, we bid him a proud farewell."

Edinburgh and the National Insurance Act.

If Mr. Lloyd George had for his purpose in the London Opera House speech to stiffen the backs of the profession in Edinburgh, and to make the counsel of moderate men, who are looking further ahead than next July, of no avail he is to be congratulated. Even supporters of the present Government have been rendered actively hostile. The Chancellor of the Exchequer has been an unspeakable trouble to his political friends in medicine, many of whom in their loyalty, first to medicine and secondly to their party, have been greatly embarrassed. Edinburgh has this week declared against the Act again, and at the divisional meeting of the British Medical Association selected three new representatives to the Representative meeting pledged to vote against the Act, and to vote for the removal of Dr. Maclean from the chairmanship of that body. I understand that the effect of the Chancellor's speech has not been so marked everywhere in Scotland as it has been in the Edinburgh district. Meanwhile, the election of representatives from the insurance areas to the Scottish Medical Insurance Council has been going on quietly and steadily. The Edinburgh and Leith Practitioners' Association has passed a vote of thanks to the medical corporations for the part they took in forming that council. It is expected that the Scottish Insurance Council will meet early in March.

Medical Officership of Stirlingshire.

A special meeting of the Stirling county council was held in Stirling last week for the purpose of considering the question of the appointment of a medical officer of health for Stirlingshire in the room of Dr. J. C. McVail, who was recently appointed Deputy Chairman of the Scottish Commission under the National Insurance Act. The council considered a recommendation from the public health committee to the effect that the present arrangement of a joint medical officer for the two counties of Stirling and Dumbarton, which had subsisted since 1891, should be continued, but on a division this recommendation was defeated, and it was agreed that a separate medical officer should be appointed for Stirlingshire. It was ultimately decided that the salary of the new medical officer should be £500 per annum, with travelling expenses and clerical assistance. The public health committee was empowered to make the appointment, suggested stipulations to the effect that the applicants should be able to make bacteriological examinations and that they should reside in the county of Stirling being disapproved.

Coöperation of Trained Nurses, Glasgow.

The nineteenth annual report of the Glasgow and West of Scotland Coöperation of Trained Nurses has just been issued. It forms very interesting reading, and proves the immense benefit that such an institution confers upon medical men, upon the general public, and upon the nurses themselves. The number of nurses on the roll is 185, and during the year 2096 cases were attended by them. The amount earned by the nurses during the year was £12,605, and since the establishment of the coöperation in 1894 the amount earned is £145,060 from attendance on 24,271 cases. The principle on which the institution is worked is that at the termination of a case the nurse collects the fee and pays to the lady superintendent a percentage thereof, which is placed to the credit of a common fund out of which the yearly working expenses of the coöperation are defrayed. A sick fund established in connexion with the association has a capital of £4301. All nurses (with the exception of a few who are already members of the Royal National Fund) contribute £1 per annum. These contributions, along with the income from investments and subscriptions from friends, have enabled the necessary payments to be made and a balance carried forward. The standard of qualifications for nurses has been gradually raised, while regular and continuous employment at remunerative rates, with the benefit of the sick fund, is practically guaranteed to them.

Gift of £1000 to Dundee Infirmary.

The Royal Infirmary, Dundee, has received from the widow and family of Mr. J. J. Weinberg the sum of £1000 towards the out-door relief funds of the institution, and in memory of Mr. Weinberg, who was for many years identified with the management.

Presentation to Dr. W. Brown of Braemar.

On the evening of Feb. 14th Dr. William Brown, who is leaving Braemar to take up practice in Aberdeen, was met by a large number of friends, and presented with a Barlock typewriter and a silver tea service, while his sister, Miss Brown, received a gold bangle. These gifts mark the appreciation of the respect and esteem in which Dr. Brown is held, and of the good services he has rendered to Braemar during his eight years' residence there.

Feb. 19th.

DONATIONS AND BEQUESTS.—By the will of the late Surgeon-General Sir John A. Woolfryes the St. George's Hospital, the Royal Home and Hospital for Incurables, Putney, and the British Medical Benevolent Fund will each receive £500.—The Goldsmiths' Company have sent £1000 to St. Bartholomew's Hospital for the general funds of that institution.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Royal Hospital for Incurables and Provision for Consumptives.

THE campaign against the extension of the Royal Hospital for Incurables by the addition of a pavilion for tuberculous patients is being carried on with vigour. At a public meeting held in Rathmines town-hall last week resolutions were carried protesting against the proposed action of the hospital authorities. It has been pointed out by a well-known Dublin surgeon that "all modern medical knowledge points to the fact that no case of consumption should be called incurable." A number of governors of the hospital have forwarded a memorial to the managing committee, praying the committee to reconsider its decision. The memorial might have carried more weight had it not followed closely on an unsuccessful attempt by the objecting governors to force their views on the managing committee at the recent election of five members of that committee. The question of the enlargement was made a test question, and the objectors failed to win a single place on the committee. If by any chance the committee is prevented from carrying out its scheme a very serious problem is raised. The Royal Hospital for Incurables is situated in an open suburb, but the workhouse hospitals, which contain many scores, if not hundreds, of tuberculous patients, are situated in densely crowded districts. A home for the dying, with consumptive patients, is in a crowded and poor district. The two fever hospitals, and the fever wings of the various city hospitals, are situated without exception in populous districts. If there is any danger of air-borne infection, the danger from these institutions must be infinitely greater than that from the Royal Hospital for Incurables. Nevertheless, many of the people officially connected with one or other of these institutions are among the loudest in their criticism of the Royal Hospital for Incurables.

Deaths of Children by Burning.

During the present winter very many deaths of children by burning have occurred. A few weeks ago the board of the Meath Hospital drew the attention of the public to the large number of fatal cases which had been attended in the hospital. It would appear as if the health authorities did not take any steps to enforce the provisions of the Children Act. At a recent meeting of the Dublin Sanitary Association a resolution was passed in which the council call the attention of the coroner, the sanitary authorities, and the public in general to the fifteenth section of the Children Act, 1908 (8 Edw. VII., ch. 67), which imposes substantial penalties on the guardians of children of tender years for exposing such children to risk of burning.

High Death-rate in Belfast.

Belfast is at present in the grip of a severe epidemic of influenza and of whooping-cough, with the result that the death-rate for the week ending Feb. 10th was from all causes 41·7, and from the principal zymotic diseases 2·7. This appalling mortality places Belfast at the height of all the towns of the United Kingdom, and the rate is nearly double that of the average of the English towns. The weather is mild, but pneumonia and chest ailments are very prevalent, the death-rate from these complaints alone being 21·7 per 1000. During the week ending Feb. 10th 15 deaths were due to whooping-cough, 73 to pneumonia, and 67 to diseases of the respiratory organs. During the week ending Feb. 15th 146 children under five years of age died, which was equal to a rate of 19·4 per 1000 of the whole population. Of these deaths, 108 were attributed to chest affections, whereas the average number of deaths of children under five years of age was 38, or 5·1 per 1000. Of the present epidemic of influenza, the marked features are throat, ear, and chest complications, and especially high temperatures among children.

Ulster Medical Society.

At the sixth meeting of the Ulster Medical Society for this session, held in the Medical Institute, Belfast, on Feb. 15th, the President, Dr. H. L. McKisack, being in the chair, Sir John W. Byers showed an old midwifery book, published in 1663, containing "The Compleat Midwife," by the celebrated Madam Louise Bourgioes, who attended Mary de Medici, wife of Henry IV.; "A Full Supply" of most useful and admirable secrets, by T. Chamberlain, M.P.; and "Rare Secrets in Midwifery," by Sir Theodore Mayern, who was physician to Charles I. He gave an account of each of these writers. Mr. P. T. Crymble showed a most interesting series of Roentgen-ray photographs of the stomach after a meal with bismuth had been taken, to illustrate the action and position of that organ during digestion, and he also exhibited a number of stomachs prepared by formalin injection. In the discussion that followed Dr. W. Calwell, Professor J. Symington, Dr. A. Fullerton, Professor T. H. Milroy, Dr. S. T. Irwin, and Sir John Byers took part.

The Vice-Regal Milk Commission.

This Commission spent five days of last week in Belfast in interrogating a large number of witnesses, principally official. Their inquiries conveyed the impression that it was a pity the *personnel* of the Commission had not been strengthened by the presence of a pathologist, as well as by someone who had a thorough practical knowledge of the modern production, method of sale, and distribution of milk. Dr. W. St. C. Symmers, professor of pathology in the Queen's University of Belfast, in the course of his examination said he was not in favour of milk being subject to the process of pasteurisation. He thought the food properties of the milk were by this process undoubtedly impaired—why, he did not know. He had spoken to men who had large experience in the treatment of children, but not one held that pasteurised milk was as good as raw milk. He was still less in favour of sterilisation. To the great amusement of those present a lady member of the Commission then proceeded to point out to the professor, as though he were a nurse or a first-year medical student, the special advantages of pasteurisation, with the idea of showing him the error of his ways and the scantiness of his knowledge, the lady herself being apparently unaware that the Belfast corporation several years ago declined the gift of a pasteurising plant from Mr. Strauss. Another member of the Commission inquiring on the subject of immunisation, asked if the fact of people being supplied with milk containing an undiscovered tuberculous fraction did not tend to set up immunity from tuberculosis; to which Professor Symmers replied that that was certainly an extraordinary theory. They could not make all-round experiments that might be exceedingly dangerous. Were they to inoculate a child with anthrax it would in all probability mean the death of the child. He certainly would not father a view that would justify the selling of tuberculous milk to the public. It will be interesting to read—after a time—the conclusions and recommendations of a milk commission of which some of the members seem to regard "pasteurisation" as the solution of the milk problem, while others consider the taking of milk containing a few living tubercle bacilli is likely to set up immunity from tuberculosis.

The Insurance Act.

At a meeting of the Belfast Trades Council on Feb. 17th the following resolution was carried:—

That the secretary of the Belfast and District Trades and Labour Council be instructed to write the leaders of the different political parties and Ulster M.P.'s to urge them to bring pressure on the Government to pass a one-clause Act restoring the medical benefits to Ireland, as the absence of such benefits will severely handicap approved societies in Ireland, it being impossible for them to provide any safeguard against malingering and other abuses owing to there being no control over the doctor. We are also of opinion that the medical benefits are the most valuable benefits in the Insurance Act, and owing to its higher death-rate these are more needed in Ireland than any other part of the kingdom.

Feb. 20th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Death of Lord Lister.

THE great loss that British science has sustained in the person of Lord Lister has been felt in all countries. In France the Academy of Medicine suspended its session in sign of mourning, and the Academy of Sciences directed its President, M. Lippmann, to represent it at the funeral ceremony. Arrangements were also made for him to be accompanied by M. Chauveau (professor at the Museum), M. Dastre (professor at the Sorbonne), and M. Roux (director of the Institut Pasteur.)

Transmissible Diseases in Paris during 1911.

While a great number of cases of transmissible disease were reported in Paris during 1911, the figures are not at all surprising if its population is taken into account. The following is the official total as issued by the Prefecture of Police: Typhoid fever, 2175; variola and varioloid, 93; scarlet fever, 3565; measles, 11,987; diphtheria and croup, 3043; cholera and choleriform diseases, 32; ophthalmia neonatorum, 179; cerebro-spinal meningitis, 94. In the suburbs the figures are as follows: Typhoid fever, 1660; variola and varioloid, 23; scarlet fever, 1523; measles, 2349; diphtheria and croup, 1475; cholera and choleriform diseases, 8; ophthalmia neonatorum, 63; cerebro-spinal meningitis, 49.

The Isolation of Infectious Diseases in Schools.

The *Journal Officiel* has published a notice laying down the duration of isolation to be practised for pupils at public schools of all kinds who may be attacked with infectious disease, and the conditions that may determine this duration both for the patients and for their brothers and sisters. Pupils with diphtheria may return to school 30 days after a clinical cure, as certified to by a medical man. This delay may be lessened if, after two cultures made at eight hours' interval, the bacteriological examination is negative. In small-pox, 40 days after the beginning of the disease, readmission can be allowed on presentation of a medical certificate stating that there are no crusts or scales and that the pupil has taken a bath. In scarlet fever, the same measures as in small-pox. In measles, after 16 days. In mumps, 21 days. In whooping-cough, 30 days after absolute disappearance of spasmodic accesses, certified to by a medical man. In rubeola, 16 days. In typhoid and paratyphoid fevers, 28 days after cure, as certified by a medical man. In dysentery, 28 days. In cerebro-spinal meningitis, 40 days after a clinical cure medically certified. In poliomyelitis, 30 days after the beginning of the disease. In tinea and trachoma, when cured. If the patient has not been isolated his brothers and sisters will be allowed to return at the same time as himself provided they have escaped attack. If the patient has been isolated, the readmission of the brothers and sisters will take place, with certain exceptions, after a delay corresponding to the incubation period of the disease plus two days.

Evils of High Heels.

At the Société de Médecine de Paris, on Jan. 27th, M. Dagron showed that high heels can not only give rise to pain and contracture, but can set up a true inflammation of the tendons of the postero-inferior part of the calf. This affection may simulate a deep varicosis or even a cold abscess calling for special treatment, while all that is really required is rest and re-education in walking without high heels.

"Study Travels."

The "study-travel" of the Association Internationale de Perfectionnement Scientifique, an organisation which has the support of the French Government, will take place from August 10th to Sept. 6th in the Balkan countries, Turkey, and Greece. Aix-les-Bains is the place of assembly. The itinerary will take in Venice, Trieste, Agram, Sofia, Constantinople, Mitylene, Smyrna, Athens, Eleusis, Olympia, and Corfu, the final meeting to be held at Evian.

The Faculty of Medicine of Paris.

By a decree rendered Jan. 31st, on the recommendation of the Minister of Public Instruction and the Superior Council of Public Instruction, it is declared that the organisation of the practical school of the Faculty of Medicine of the University of Paris and the regulations relating to the nomination and to the attributions of its *personnel* are determined by ministerial decrees made in the permanent section of the Superior Council of Public Instruction after consultation with the Council of the Faculty, and that all contrary dispositions of preceding regulations are, and remain, repealed. On the other hand, the Minister of Public Instruction has addressed to the Vice-Rector of the Academy of Paris a circular relative to the reopening of the Faculty of Medicine. This will be reopened for students of medicine of the first and second years on March 1st next. According to the proposals addressed by the Vice-Rector, together with the Dean of the Faculty of Medicine, the Minister has decided that second-year students shall be called on to take up practical work at dissection from March 1st, and to continue it during March and April. During this period anatomical demonstrations will be made three times a week by an *agrégé* of the Faculty. The time of the first examination will be, as an exceptional measure, postponed for them from March to May, the date to be fixed by the Dean. For first-year's students practical work at anatomy will begin in 1912–13, not on Nov. 3rd, but on Oct. 1st, and if necessary it will be continued beyond Feb. 28th following. The Minister hopes that circumstances will permit these students to take the first examination at the ordinary date in 1913. Students of this class will be allowed to enter for the posts of residency at the hospitals at the usual dates conditional upon being properly "signed up."

The Medical Men's Art Salon.

The third medical salon will be open from March 12th to 24th next in Paris. As on former occasions, all professors, practitioners, internes, and students are permitted to exhibit paintings, sculpture, water-colours, engravings, pastels, designs, and decorative art. This year a section will be devoted to medals and *objets d'art* bearing some relation to medicine.

Feb. 20th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Dissatisfaction among Medical Students in the University of Breslau.

ANATOMICAL study in the University of Breslau has of late been interfered with by the existence of very strained relations between the students and the professor of anatomy. The students some time ago complained to the Minister of Public Instruction concerning certain proceedings in the State examinations and their personal treatment by the professor. The Minister succeeded in pacifying the students for a time, but they have again become highly incensed on account of a line of action which the professor has now taken. He had the doors of his lecture room closed at the beginning of his lectures, so that late comers could not enter, and he refused to give certificates to those who had complained, so that they could not apply for admission to the State examination. These restrictions led the students to adopt a course not unusual in Russia, but hitherto unknown in Germany, the result being that they boycotted the professor so that when he intended to deliver a lecture on topographical anatomy he found the amphitheatre empty. The Dean of the Medical Faculty tried to conciliate both parties, and after the professor had explained his motives at a meeting of the students the boycott was stopped on condition that the professor resigned his position as a member of the examination board. He has now reached an advanced age and will probably soon resign his University appointment altogether, because his behaviour has created some prejudice against the University of Breslau, and the number of medical students has considerably decreased there.

The Relation of the Wassermann Reaction to Lead Poisoning.

Some recent observers using the Wassermann reaction have obtained positive results in certain cases of lead poisoning, a circumstance which if true would have certainly an important bearing on the value of this reaction from a clinical and theoretical point of view. In a recent number of the *Deutsche Medizinische Wochenschrift* Dr. Hilgermann, medical officer of the city of Coblenz in Rhenish Prussia and chief of the public laboratory there, published a series of observations made by him on workmen of the extensive lead and silver smelting works at Braubach, in the neighbourhood of Coblenz. He examined 34 cases of acute, subacute, and chronic lead poisoning, with typical symptoms, including anæmia, pain in the joints, polyneuritis, paresis of the radial nerves, and Bright's disease. A typical line of blue was always present in the gums. The result was that the Wassermann reaction was negative in every case, and Dr. Hilgermann concluded that this reaction must be regarded as characteristic of the presence of syphilis. It was probable that in the cases of lead poisoning examined by other medical men who had found a positive reaction the patients had been syphilitic without having been aware of their disease, a fact not very uncommon among the working population. Moreover, the modification of the reaction

devised by Dr. Stern, and frequently used by various medical men, might be regarded as not absolutely reliable; at any rate, Dr. Hilgermann, working strictly in accordance with Professor Wassermann's directions, has come to contrary results.

Medical Certificates for Motorists.

The Secretary of State for the Home Department has recently issued new regulations concerning the medical examination of candidates for a certificate as motorists. A sound body and normal powers of hearing and seeing are indispensable; the right arm and leg must be freely moveable; in the case of contractions or loss of single fingers it must be ascertained whether the motorist is able to manage the steering wheel with one hand. A minimum visual power of two-thirds in one eye and of one-third in the other is required. Night-blindness, diminution of the field of vision, paresis of the muscles of the eye, and well-marked strabismus render the applicant unfit for the certificate. Whispering voice must be heard at a distance of at least 3 metres. In the case of persons suffering from tabes, diabetes, or diseases of the chest, the abdominal organs, the great vessels, or the kidneys, the decision will depend on the circumstances of each individual case. When general paralysis is suspected the examination must be repeated after a certain time. Well-marked neurasthenia, giddiness, insanity, and epilepsy, of course, make a person absolutely unfit for motor driving.

Statistical Investigation on Venereal Diseases.

A statistical investigation concerning venereal diseases was lately made in the Duchy of Brunswick, one of the smaller states of the German Empire, with a population of about half a million. A similar investigation had been carried out in the kingdom of Prussia about ten years ago, but whilst in Prussia it occupied only one day, April 30th, it was extended in Brunswick over half a year. Obviously the latter method, although not practicable for a large country and for many thousands of medical men, but rather easy in a small country, gives more reliable results; and, in fact, the number of patients recorded was greater in Brunswick than in Prussia. The investigation included syphilis, gonorrhœa, soft ulcers, and condyloma. The results were contained in 842 cards returned to the Statistical Office of Brunswick from the medical men and the hospitals of the country. According to the *Deutsche Medizinische Wochenschrift*, the statistical returns show (1) that venereal diseases are found in an alarming number among every class of the population; and (2) that they are relatively more numerous in the towns than in the country, and relatively highest in the only large town of the duchy, the city of Brunswick. In the country districts syphilis is just as frequent as gonorrhœa. Gonorrhœa predominates in the male sex and syphilis in the female sex. The number of married patients is considerable. Prostitution has an essential influence on the spread of venereal diseases. Of the male patients, 35·4 per cent. were workmen, and 22·3 per cent. were tradespeople, the remainder including State officials, soldiers, members of the higher professions, &c. In the latter class syphilis is especially prevalent, while in the other two classes gonorrhœa predominates. Of each 10,000 of the population, 39·1 in the city of Brunswick, 10·8 in the other towns, and 3·6 in the country were venereal sufferers. Obviously venereal diseases are more easily spread the more dense the population. The greatest number of syphilitic patients was recorded for women in the age between 20 and 25 years, and in men in the age between 25 and 30 years.

Club Practice in Germany.

The Supreme Court of Appeal of the German Empire has now pronounced its decision in a conflict which broke out nearly seven years ago between eight sick club doctors and the club authorities. In September, 1905, the doctors of the town sick club of Remscheid resigned their duties in a body, and the reasons given for this step afford an apt illustration of the unfortunate position in which many club doctors in Germany are placed owing to the authority vested in the committees managing these bodies. The doctors based their step on the fact that the actions of the committee placed them in a position derogatory to their professional dignity, and therefore made it incompatible for them to continue their duties. The committee arbitrarily imposed fines, or, indeed, made deductions from their remuneration for alleged infringements of certain rules drawn up by the committee. Further, all prescriptions were submitted to a rigorous revision with a view of controlling the cost of treatment, and the doctors were compelled to prescribe as cheaply as possible, the rules drawn up for prescribing being such that in many cases the enforced cheap method of treatment ran counter to the interests of the patients. On the other hand, when asked to give certificates entitling the members of the club to draw pensions provided by the Imperial funds they were expected to make statements in favour of the applicant's claims. The sick club authorities asserted that here the action of the doctors had caused an extra expenditure of £5250 to the club, and claimed the payment of this amount from the doctors. In the first instance the doctors won, the court expressing the opinion, *inter alia*, that the fact that they had given up an assured position under the club for an uncertain future was proof of the existence of conditions which rendered a continuance of their duties, in the circumstances, practically impossible. The club committee appealed against this judgment, and in the higher court won the case, the decision being principally based on the view that the doctors should have awaited the decision of the arbitration board provided by the rules of the club for dealing with disputes between the medical attendants and the committee. The matter was then brought before the Reichsgericht in Leipsic, which has now referred the case for retrial in the lower court, this decision being based on the view that the evidence abundantly proved the existence of unsatisfactory conditions in the management of the club.

Feb. 17th.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

New Views as to the Pathology and Treatment of Tuberculosis.

IN the year 1909, on the occasion of the International Medical Congress held at Budapest, Dr. Joseph Hollós, pathologist to the County Hospital in Szeged, wrote a book entitled "The Tuberculous Intoxications." He read portions of it at the meeting and delivered an address on the subject, but neither his book nor his address made any great impression. His views were so heterodox that most of his hearers turned deaf ears to his arguments. At the same time he published in a German periodical an article which attracted the attention of Dr. Poncet, a well-known professor in the University of Lyons. Dr. Poncet entered into communication with Dr. Hollós and persuaded him to have a French translation of his book published in Paris. Dr. Poncet himself wrote a preface to this work, and has eulogised it in several addresses delivered by him before the Paris Academy of Medicine. Other speakers have discussed it at meetings of the Paris Medical Society and in other scientific assemblies. The interest taken by leading French medical men in the work of Dr. Hollós was further shown by the fact that a year ago he received an official instruction from the Paris Academy of Medicine to compete with his book for the valuable Audiffred prize.

On account of the favourable reception which was given to Dr. Hollós by the French medical profession the Hungarian Minister of Public Education sent him at the expense of the State to study in France and Germany for half a year, and during this time he wrote another book entitled "Therapie der latenten und larvierten Tuberculose" ("The Treatment of Latent and Masked Tuberculosis"). This work has been published by T. F. Bergmann in Wiesbaden, with a preface written by Professor Carl Spengler, of Davos in Switzerland. The principal points of it are as follows. The latent tuberculous foci of the organism create in it a certain degree of immunity, in consequence of which the organism develops a high quality of sensitivity against its own toxins. As a result of this sensitivity to the toxins the organism reacts with various symptoms, which manifest themselves by certain nervous phenomena, by disorders of metabolism, by anæmia, and in particular by chronic headache, frequent fainting, loss of appetite, cardialgia, increased or decreased secretion of the gastric fluid, habitual constipation, diarrhœa, abnormalities of sleeping and dreaming, and sensations of great fatigue, particularly in the morning. The patients also suffer from decreased mental and bodily activity, from various

nervous and cardiac troubles, chiefly palpitation and tachycardia, from night sweats, from many different disorders of menstruation, and from rheumatic pains in the joints. The greater the degree of immunity the more pronounced are these symptoms, one or the other of which (and sometimes all of them) may last for years. Such cases are for the most part erroneously diagnosed as anæmia, or neurasthenia, or hysteria, or various neuroses.

These examples of the latent stage of tuberculosis respond very well to antituberculous treatment, and they mostly end in complete recovery. If the immunity, and together with it the sensitivity to the toxins, diminishes from any cause whatever, then also these symptoms cease spontaneously, but the disease progresses into manifest pulmonary tuberculosis, and in this way the above-mentioned symptoms very often form the first stage of that disease. If the pulmonary tuberculosis presents itself as such in the first instance and is neither preceded nor accompanied by symptoms indicative of toxic action, then from this it may be concluded that the immunity was insufficient and that the prognosis is bad. Dr. Hollós also believes that goitre is in the majority of cases of tuberculous origin, the toxins of the latent tuberculosis producing the hypertrophy and abnormal function of the thyroid gland.

In numerous cases the administration of immune bodies resulted in entire and final recovery. Dr. Hollós has used this specific method of treatment in more than a thousand cases and has made careful notes of all of them. The patients under his care were without exception treated with Spengler's serums—namely, the smaller half of them with tuberculin (on the ground of the dualistic therapy) and the larger half with the "Tuberkulose Immun-Körper."[1] It is noteworthy that Dr. Hollós succeeded in either intentionally provoking all the above enumerated symptoms or in increasing their severity when they already existed simply by the use of artificial toxins, and at the same time in stopping them when he so desired. Of the patients treated with the specific method some have wholly recovered, but the greater part relapsed after a period varying from three to six months and even longer. It has, however, to be remarked that the relapse was not complete in all the cases, because there were some instances wherein the patients originally suffered from three or four symptoms, and when they had a relapse after six months they now suffered from only one or two symptoms. The advent of the relapse is an indication that specific treatment must be resumed. According to Dr. Hollós, the Immun-Körper treatment produces results far surpassing those obtained with tuberculin and climatic treatment. The key to success is the proper individualisation of the cases, and for this purpose it is necessary to pay the most careful attention to the toxic symptoms.

I have no knowledge how far in England either the theories or the practice enunciated above have received trial or obtained support.

Feb. 13th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

A Women's Medical Service for India.

As the *Times* has recently published a series of letters, mainly from women doctors, pointing out the urgent need of adequate provision for the medical necessities of Indian women, and in an article recently published urges the establishment of a female side of the Indian Medical Service, it may be interesting to give the readers of THE LANCET some idea of how this proposal is received in India. The *Civil and Military Gazette* devotes a leading article to the subject which may be taken to represent lay opinion on the matter. It is pointed out that it is hardly necessary to labour the urgency of the need, or the utter inadequacy of existing provisions for medical aid to women in this country. There are about 150,000,000 women in India, and at least two-thirds of these have the most profound objection to be treated by male doctors. To meet the needs of these millions there are about 400 fully qualified medical women in India, about half of whom are missionaries, and the remainder mostly connected with philanthropic or charitable institutions.

The problem of lessening the burden of sickness and suffering amongst Indian women has never yet been seriously faced, and it cannot be solved either by the private enterprise of medical women or by any unofficial and philanthropic agencies such as the Dufferin Fund. The Dufferin Fund and the mission hospitals alike do excellent work up to the limit of their capacity, but they cannot supply more than the smallest fraction of the need. Even the Dufferin Fund, which has received assistance and moral support from Government, lives up to the limit of its resources, and it was acknowledged in the last annual report that the pay and prospects offered to women doctors are alike inadequate, but cannot in present circumstances be increased. Moreover, the Dufferin Fund employs, not the thousands of women doctors who are needed, but 47 women doctors of the grade, 92 assistant surgeons, and 670 hospital assistants. Under the existing rules of the Fund the pay is small and stationary, there is no provision for pension, the tenure of appointments is precarious, and even furlough is not in some cases guaranteed. Such precarious conditions are incompatible with good work, and the hardships are not minimised by the fact that working side by side with the women doctors are Englishmen with the same professional qualifications who enjoy the protection of a recognised Government service, with assured work, adequate and progressive pay, and furlough and pension guaranteed. If the Dufferin Fund with all the prestige attaching to it cannot provide its women doctors with a career that satisfies, it may be taken for granted that the task is beyond the resources of unofficial agency.

In any case, there is no possibility that any such agency could create an organisation so widespread as to meet the need of India. The creation of an adequate State service would be difficult, and it would be costly, though it could be inaugurated on a modest scale and developed as funds became available. Twenty-five years ago, or even less, a proposal to establish such a service might have been received with sullen objections if not with open and vigorous opposition. But the patient work of the Dufferin and mission hospitals has to a very large extent broken down Oriental prejudices and developed widespread appreciation of the benefits of Western medical science. In practically all the Dufferin Fund reports we read of the demand for increased accommodation, and especially for more *purdah* wards, for the women of India have learned to appreciate the value of skilled nursing and medical treatment by members of their own sex. It is believed that the initiation by Government of a medical service for women would be welcomed by all classes in this country, and the possibility of creating such a service is certainly worth careful and impartial consideration.

In this relation it may be pointed out that a council meeting of the Association of Medical Women in India was held in Ludhiana last month. A letter was sent to His Excellency the Viceroy urging the necessity for a properly organised Government service of medical women in India. A memorial was forwarded to Her Excellency Lady Hardinge petitioning for the formation of college hostels for women students in all the university cities where mixed education is carried on in India. It was pointed out that such hostels have been at work most successfully in all the large educational centres in England for very many years. Each hostel should be under the guidance and control of a lady warden, who should be experienced in educational methods, should be attached to the professional staff of the teaching institution, and when possible should herself have a university qualification. The council of the association, while admitting that there are numbers of women whose social and religious customs prevent them from making use of these centres of mixed education, is of opinion that the formation of such hostels, which would be designed for the reception of students of arts, law, science, and medicine, would very greatly help to attract women of the higher social ranks both amongst Indians and the domiciled community. A note was sent to the Director-General, Indian Medical Service, begging for the appointment of women inspectors who should inspect the work and conditions of life of all medical women, especially of the lower grades in remote districts. The council thinks

[1] See THE LANCET, Sept. 16th, 1911, p. 838.

that the appointment of such inspectors, the need for whom has so long been recognised in the educational department, would do much to improve the character of the medical work, and to alleviate the scandals which arise from time to time among the lower ranks of the female medical profession. The council welcomes the inquiries that the honorary secretary of the Countess of Dufferin's Fund is making bearing on the improvement of the class of medical women working under the fund, and considers that the standard of the preliminary examination should be raised. It strongly deprecates requiring a shorter period of training or a lower standard of examination from women than from men, and considers that no scholarships for medical training should be granted except on the results of competitive examinations. The character of successful candidates and their general fitness for the profession should, however, be carefully scrutinised before scholarships are actually awarded.

Lucknow Medical College.

The new medical college at Lucknow, the foundation stone of which was laid at the end of 1905 by His Majesty King George as Prince of Wales, and the construction of which is now complete, was opened with due ceremony by Sir John Hewett, Lieutenant-Governor of the United Provinces, on Jan. 25th. A large gathering of prominent gentlemen of the provinces and many ladies assembled on the occasion. The new college and hospital at Lucknow have been erected as a memorial of the visit of the King-Emperor and the Queen-Empress to India in 1905–06. A memorial was started for the purpose, and the total reached close on £80,000. The full cost of the project, of which only the college is so far finished, is estimated roughly at £200,000, the balance having been provided with the assistance of the Government of India and the local government.

The Prevention of Malaria.

The committee of the Bombay corporation appointed to consider Dr. C. A. Bentley's report on malaria in Bombay has presented a report. As a result of this the corporation has sanctioned the expenditure of an annual sum of nearly £5000 for a special staff.

Jan. 30th.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENTS.)

Modifying the Milk Regulations.

THE severity of the regulations of the Department of Health regarding the quality of milk to be sold in New York has undergone some modification, as it was found impossible to enforce them without at the same time permitting an increase in the price of milk, an event that would have caused great hardship. The new regulations, adopted on Jan. 4th, are as follows:—

Section 56 *a*.—All milk held, kept, offered for sale, or sold and delivered in the city of New York shall be so held, kept, offered for sale, or sold and delivered under either or any of the following grades or designations and under no other, and in accordance with such rules and regulations as may be adopted by the Department of Health—namely:—

Grade A, for Infants and Children.—1. Certified or guaranteed milk. 2. Inspected milk (raw). 3. Selected milk (pasteurised).

Grade B, for Adults.—1. Selected milk (raw). 2. Pasteurised milk.

Grade C, for Cooking and Manufacturing Purposes only.—Raw milk conforming to the requirements for Grades A and B, not condensed skimmed milk; condensed or concentrated milk.

The provisions of this section shall not apply to buttermilk, or to milk products commonly known as kumyss, matzoon, zoolak, dried milk, or milk powder, or to other similar preparations, or to cream or modified milk.

Special permits are required for the sale of any grade of milk, the only exception being condensed milk sold in hermetically sealed tins.

Lowered Death-rate.

The Department of Health of the city of New York has made public its calculations regarding the death-rate for 1911, which is 15·13 per 1000, surpassing the excellent figure attained in 1910, when it was 15·98, the lowest in the history of the city up to that time. There were 134,542 births in the city during 1911, and 48,765 marriages; the total deaths were 75,243, over 13,000 less than the average for the whole decennium.

Gift to the New York Academy of Medicine.

Mrs. E. H. Harriman, widow of the late railway millionaire, has made arrangements to permit the Academy of Medicine, the representative professional organisation of the city, to undertake a work which in health matters will, as it were, parallel the activities of the Bureau of Municipal Research in financial matters. She has employed a trained statistician to carry out the practical details of the work of a medical committee. Among the duties of this committee are to collect facts in regard to public health, sanitation, and hygiene; to establish coöperation among all the health organisations of the city; to keep the profession advised of current health conditions; to render authoritative opinions on health matters to the public schools, health departments, and the public generally; and to make close and constant scrutiny of the hospitals and dispensaries of the city.

A Successor to Dr. Walter Wyman.

The vacancy caused by the death of Dr. Walter Wyman, Surgeon-General of the Public Health and Marine Hospital Service, has been filled by Dr. Rupert Blue, of South Carolina, who has been connected with the service for many years and is distinguished on account of his success in abolishing plague from San Francisco. In making the appointment the President has announced that it is for four years only, instead of for life as heretofore.

Increased Manufacture of Liquor.

The year 1911 has been a record year for the manufacture of alcoholic beverages, surpassing the hitherto unapproached figures for 1907. The year's production of distilled spirits amounted to 175,402,395 gallons, and that of beer and ale to 63,216,851 gallons. The amount of liquor now held to ripen in bonded warehouses is 249,279,346 gallons.

Typhoid Prophylaxis.

An example which will probably be quickly followed by all other militia regiments in the country has been set by the Seventy-first Regiment, National Guard of the State of New York, the officers and men of which were inoculated against typhoid fever last week with serum obtained from the medical department of the regular army. All officers and enlisted men of the army under the age of 45 years are now inoculated, and all recruits enlisting henceforth will be obliged to submit to the prophylactic vaccination.

Christian Science on the Isthmus.

The President has issued an order permitting Christian Scientists to practise their form of healing in the Canal Zone.

Mortality from White-lead.

A bulletin issued by the State Bureau of Labour of New York states that there were 60 deaths from poisoning with white-lead during the past year. Of the 60, 37 were painters, 8 were labourers, 4 were printers, and 2 were merchants; there was 1 each among machinists, moulders, smelters, tinsmiths, salesmen, brush-drawers, glaziers, porters, and coopers.

Blow to a National Habit.

An order has been issued forbidding the use of chewing gum in the navy. Gum was enormously popular among the "jackies," and was sold in immense quantities from the ships' stores. Captain W. F. Fulham, of the U.S.S. *Mississippi*, drew the Navy Department's attention to the interference with discipline caused by this practice, with the consequence that the gum was ordered to be no more sold or used on board ship. The popularity of gum-chewing in America has been attributed to national nervousness and other causes, the most probable of which is the great dryness of the atmosphere.

Acute Poliomyelitis.

The number of deaths from acute poliomyelitis in the United States Census Bureau's death registration area in 1910 was 1459, as compared with 569 in the previous year, the first year in which the disease was differentiated from the other diseases of the spinal cord. The death-rates per 100,000 of population for 1910 and 1909 were 2·7 and 1·1 respectively. In 1910 the largest number of deaths (310) was registered for the month of September, while in 1909 the

month of maximum mortality from acute poliomyelitis was October. The deaths of males exceeded those of females in both years, but in a somewhat larger proportion during the year 1909.

Increase in Insanity.

There are now 37,303 more cases of insanity in the United States than there were six years ago. While the total population has increased 11 per cent. in that time, the increase in insanity amounts to 25 per cent. Massachusetts, of which the chief city is Boston, leads with 344·6 insane per 100,000 population, with New York State a close second with 343·1 per 100,000.

Epidemic of Cerebro-spinal Meningitis in the South-West.

Cerebro-spinal meningitis is present in epidemic form in many districts of the South-Western States of America. The disease has been prevalent in parts of Texas for some time, and is reported to be now spreading in Oklahoma. In Springfield, Mo., there have been several cases. A detention camp has been established in Shreveport, La., for persons coming from the infected districts of Texas, while officers of the Public Health and Marine Hospital Service are coöperating in Texas with the State Department of Health in fighting the disease.

Increase of Street Accidents in New York.

According to a report issued recently by the National Highways Protective Society deaths due to vehicular traffic during January, 1912, in the streets of New York City show an increase over the same month last year. In January, 1911, 22 persons were killed in street accidents, whereas in January last 29 met their death in a similar manner. Motor-cars caused the death of 11 persons, electric street-cars caused the death of 10, while wagons killed 8. 219 people were injured during the same month.

National Control of Quarantine of the Port of New York.

At a recent meeting of the New York Academy of Medicine several speakers advocated the establishment of national quarantine for the port of New York. At the present time New York, Boston, Providence, and Baltimore are the only quarantine stations in the country that are not controlled by the Federal Government. The consensus of opinion of the meeting seemed to be that the inclusion of these ports under national control would be in the interests of public health. Prominent among the speakers who urged the adoption of the project was Dr. Leland E. Coffer, assistant surgeon-general of the United States Public Health and Marine Hospital Service.

Instruction of the Laity.

A series of 45 lectures has been arranged to be given at the New York Academy of Medicine by well-known medical men in the city to audiences of laymen. These lectures, which are being largely attended, are likely to prove of great educational value. They take up nearly all the modern problems of the profession and the newer methods of treatment by vaccines and so on, the questions of alcohol and narcotic drugs, the care of the newborn, the peril of venereal disease, and other subjects.

New Hospital Buildings.

The new buildings of the New York Post-Graduate School and Hospital greatly increase the facilities of the institution. The additions include new operating rooms and wards for both paying and non-paying patients; there is also an immense increase in the surgical armamentarium. There are 480 rooms in the new building, which has cost over £300,000. The Mount Sinai Hospital received over £89,000 during the past year, a considerable part of which will be spent on the completion of the new pathological laboratory now in process of erection. A hospital for sick animals will soon be realised, over £16,000 having been raised by the New York Women's League for Animals in the last two months, £5000 of this amount coming from one enthusiast.

Official Exoneration of Dr. Wiley.

The house committee on expenditures in the Agricultural Department in its recent report to Congress completely exonerated Dr. Harvey W. Wiley as far as the accusations brought against him for malfeasance in office were concerned.

Proposed Action in Regard to Fee Splitting.

In a report to the Board of Regents of the State of New York the State Commissioner of Education has recommended that drastic action be taken, even to the revocation of licences of those found guilty, to prevent the splitting of fees between the general practitioner and the surgeon or consulting physician. The Commissioner cites the report of the Erie County Medical Society on the subject of fee-splitting, which that society reported to exist among its members to a deplorable extent, and suggests to the legislature that it consider the advisability of amending the law to prohibit a consulting physician or surgeon from paying fees to another practitioner for bringing him "business" without making the fact of such payment known to the patient.

Feb. 8th.

Obituary.

SIR WILLIAM HENRY ALLCHIN, M.D. LOND., F.R.C.P. LOND., F.R.S. EDIN.,

PHYSICIAN EXTRAORDINARY TO THE KING; CONSULTING PHYSICIAN TO WESTMINSTER HOSPITAL.

BY the death of Sir William Allchin, which took place on Feb. 8th after a long illness, the medical profession has lost a sagacious and indefatigable leader who by his personal labour and his influence added much to the general progress of medicine. In the administration of the Royal College of Physicians of London he had been a source of strength for many years, while as an authority on the intricate subject of the constitution of the University of London he had no rival.

Born in Paris on Oct. 16th, 1846, Sir William Allchin was the eldest son of the late Dr. Allchin, of Bayswater, and was descended from old Kentish stock. After being educated privately he entered as a medical student at University College, London, where his progress was marked by the same thoroughness which characterised his later life. In 1869 he qualified by taking the Membership of the Royal College of Surgeons of England and the Licentiateship of the Society of Apothecaries of London, and two years later he graduated as Bachelor of Medicine at the University of London, gaining the Scholarship in Medicine and the gold medal. In 1878 he became a Fellow of the Royal College of Physicians of London. His early medical career was associated with University College and its attached hospital, and he was at one time lecturer on comparative anatomy and animal physiology at University College, but it was at Westminster Hospital that he obtained the experience upon which the work of his life was based. Here as assistant physician and afterwards physician, joint lecturer on the principles and practice of medicine, dean of the medical school, and emeritus lecturer on clinical medicine, he became known among his contemporaries and his pupils alike as a singularly able teacher with a gift of organisation and a passion for work. These qualities led to his election to the Senate of the University of London, and to his appointments upon the Consultative Board of the Medical Service of the Royal Navy, as well as of the Army and Indian Medical Services. He was also appointed examiner in medical subjects in the Universities of London, Durham, and Glasgow, and at the London Conjoint Board at different times—a record of popularity among examining boards which would be very hard to beat.

His literary and oratorical powers kept pace with his practical experience, and he delivered many public addresses of genuine merit. The official lectures which he gave from time to time in connexion with the Royal College of Physicians of London and different learned societies, connected or not with the medical profession, were always marked by thoroughness, conciseness of statement, clearness, and judgment, four things which made his lectures and addresses valuable supplement to our knowledge of medicine or sociology. In the Bradshaw Lecture on Duodenal Indigestion, which he delivered in 1891 before the Royal College of Physicians of London, he mapped out the outlines and broad features and laid down a course for further study of an obscure and important subject in accordance with the then physiological knowledge and the prevailing conceptions of pathology. In 1896 he delivered the annual oration before the Medical Society of London, of which he was one-time president and for 18 years an admirable librarian. This address, entitled "The Breaking Strain," dealt with the subject of death and its cause. "A review of all

the circumstances would seem to show," he said, "that failing vitality follows the cessation of reproductive capability rather than that this latter fails because of approaching death, and, if we may speculate with others, it appears to be among the possibilities that the lacking stimulus is to be found in connexion with the sexual elements themselves—some ferment, may be, such as we assume to exist in these lately recognised internal secretions, the potency and influence of which in respect to nutritive processes we are but just gaining a glimpse of." Suggestive ideas and bold conceptions of this sort were common in his conversation and public utterances.

In 1897 he delivered the address at the Hunterian Society on Some Relationships of Indigestion, setting forth some considerations which he thought were essential preliminaries to the formation of a diagnosis and a rational treatment of indigestion. The Study of Structure in Relation to Function was the subject of the Harveian Oration which he delivered in 1903, and the following remarks with which he concluded the oration are important as showing again the wide range of his conceptions.

> While I have endeavoured to illustrate with such completeness as my brief time permits the relationships of physiology to anatomy, whether normal or morbid, the general tenour of my remarks will have indicated that when the limits of visibility, even with our most perfect instruments, have been reached the separate investigation of structure and of function no longer becomes possible. The molecular constitution, chemical or electrical, of living matter becomes conceivable only in terms of action, and function and structure are but aspects of each other. No deeper secrets of nature exist to be searched out by observation and experiment than these, and none will more benefit mankind in their discovery.

In the Lumleian lectures which he delivered in 1905 on Nutrition and Malnutrition there is an elaboration of his earlier thoughts on the subject of the cessation of vitality. In these lectures he summarised some of the problems in the biochemistry of nutrition, and succinctly declared that as it appeared to be possible by the application of certain electrolytes to avert from a living ovum what may be termed its natural death, the degeneration and death of the tissue cells of higher organisms might be averted; at any rate, a search in this direction should no longer be looked upon as a hopeless quest."

"A Manual of Medicine," in five volumes, edited by Allchin, appeared, the first volume in 1900 and the last in 1904. He himself contributed articles to these volumes, which were all stamped by a high level of excellence. Among his other contributions to the literature of medicine, in addition to the last-named manual, were articles on Disorders of Digestion and Diseases of the Intestines in "Quain's Dictionary of Medicine," on Diseases of the Stomach in "The Encyclopædia Medica," and Diseases of the Peritoneum in "Allbutt's System of Medicine." Besides these he contributed many articles to THE LANCET, the West London Hospital Reports, and "Keating's Cyclopædia of Diseases of Children." In 1908 he published "Methodus Medendi."

Sir William Allchin married Margaret, eldest daughter of Alexander Holland, of New York, in 1880, and was created a Knight in 1907. In March, 1909, his friends and old pupils presented him in the board room of Westminster Hospital with his portrait as a mark of their high regard.

Dr. de Havilland Hall, for many years Sir William Allchin's colleague on the staff of the Westminster Hospital, bears intimate testimony to qualities which we have only indicated above in a summary of Sir William Allchin's work. He writes:—

"Allchin was a born organiser, and had such powers of administration that he would have made an excellent Secretary of State. At the Coronation of King George V., all the medical arrangements in Westminster Abbey were under his supervision, while he also undertook the distribution of seats in the vast stand erected by the Westminster Hospital. Both these tasks were carried out with his usual tact and thoroughness, and to the entire satisfaction of all concerned. The outstanding feature in his character illustrated in such undertakings as these, was his unswerving adherence to what he considered his line of duty. This was particularly shown on the occasion of his resigning the post of assistant registrar of the Royal College of Physicians of London, at the time when the majority of the Fellows decided upon a plan of action in regard to the University of London which he considered unwise. He took this step so that, being relieved of responsibility, he might regain the freedom to pursue such course as might seem desirable to him in the circumstances, and in doing so he earned the commendation of many Fellows.

"He was an admirable teacher, and his teaching was much appreciated by the students of the Westminster Hospital He impressed upon them by precept and example the necessity for a thorough investigation of every patient coming into the wards. Though he never laid himself out to coach men for examination purposes, his large experience as an examiner naturally influenced his teaching. He was fair as well as loyal, and one of the first before whom all difficulties, whether of scientific or administrative sort, were laid by his colleagues.

"Allchin did not make friends easily, as he had a certain degree of reserve in his manner, and he was very reticent in expressing his deeper feelings, but those who had the privilege of his friendship could rely upon him, and even acquaintances realised that he was a man to be respected and trusted, But reserved as he certainly was, he was the most admirable and generous of hosts. There was nothing he enjoyed more in recent years than walking about the lanes of his ancestral county of Kent and inspecting all the interesting churches or buildings that he encountered. It was a source of great pleasure to him when he was able, some years ago, to acquire a delightful old black and white house at Plaxtol. This he restored with taste and judgment, and he seemed to have no greater pleasure than welcoming his friends there. He was a charming host, full of conversation, and he had the power of adapting himself to the capacity of his listener. Not only in the country did he exercise his hospitality. In London he gave dinners on a large scale at his clubs—the Athenæum and Conservative—where he entertained the leading men in medicine, science, and the arts. He was much impressed with the useful effect of men of different views meeting at dinner and airing their ideas, and one of the best things he ever didfor the Westminster Hospital Medical School was instituting the school and staff dinner. The members of the staff of the school and hospital dine together three times a year, and this opportunity of friendly intercourse has had a powerful influence in securing the harmonious coöperation of the staff in the work of the school and hospital. Allchin was the first secretary to the club, which has now been carried on for 40 years.

"The affectionate regard in which he was held was testified by the large number of friends who assembled at East Malling on Thursday, Feb. 15th, to see him laid to rest by the side of his grandfather, also William Henry Allchin."

An old friend and pupil writes:—"To all old Westminster men the death of Sir William Allchin will come as a grievous shock, for no man ever worked harder for his hospital than did the late Sir William. Courteous and dignified, he was indeed the type of what a consultant physician should be. No one ever heard him utter a derogatory word of a brother practitioner, and I am equally sure that no brother practitioner ever spoke slightingly of him. It is, however, of his unique powers as a clinician that I would speak. His early morning cliniques on a Friday were truly *sui generis*. Sir William would not take his class perfunctorily round his beds, but would select one or two cases to demonstrate for the two or three hours that he was in the hospital. These cases would be gone into most minutely, so that no one could leave the clinic without having learnt something of importance for his own practice. By question and answer, and by illustration from the rich store of his own personal experience, the students would have instilled into them all the essential features of the case. He was the possessor of the gift of a quaint genial raillery which never wounded the feelings of anyone at whom it was directed. Westminster men must of a surety have been well grounded in the science and art of medicine by their old teacher, for Allchin was completely familiar with up-to-date pathology of disease in all its aspects, at the same time that he was a master of the practice of his profession. May the earth lie lightly upon him, now that his labours are finished."

GERHARD HENRIK AMAÜR HANSEN.

THE death is announced of Dr. Gerhard Henrik Amaür Hansen, whose name is associated with the discovery of the bacillus of leprosy. Dr. Hansen was born on July 29th, 1841, and he early made his name as an authority on leprosy in its clinical aspects. In 1873 several years of laborious investigations were rewarded by his discovery of the bacillus of leprosy,

the recognition of which formed the basis of rational treatment of this disease for the first time. But though Hansen's bacteriological work brought him international fame and honours, his clinical and legislative work were even more appreciated in Norway, where his vigorous and untiring efforts to stamp out the disease were rewarded with striking success. Leprosy, which had been a national scourge on the west coast, became in the course of a few decades a rare and unfamiliar complaint. At the close of the nineteenth century the hospital accommodation for leprosy so far exceeded the needs of the nation that one of the large hospitals near Molde was converted into a sanatorium for consumptives, and within the last four years a further reduction of hospital accommodation for lepers has been contemplated. In 1909 Hansen's system for the control of leprosy was unanimously admitted to be the most satisfactory in practice by the members of the Second International Leprosy Congress in Bergen, and he was elected as Virchow's successor to the vice-presidentship of the International Leprosy Committee. Although his work on leprosy occupied much of his time, his interests were numerous, and he was particularly devoted to the study of evolution and Darwin's theories, of many of which he was a keen supporter. His publications on leprosy alone are very numerous and in many languages. His advanced years were no hindrance to a life active till the last, and he was travelling on the west coast of Norway at the time of his death. He had retired on the evening of Feb. 11th, and on the following morning he was found dead in his bed. His many friends, both at home and abroad, will learn with sorrow of his death, which robs Norway of her most distinguished scientist of the present day.

RICHARD LINGARD STOKES, M.R.C.S. ENG., L.R.C.P. LOND.

THE death is announced at Ditchling, nestling at the foot of the Southdowns in Sussex, of Mr. Richard Lingard Stokes, and the mere fact that he had practised there for over 30 years is evidence enough to show that he will be greatly missed. Son of Mr. Lingard Stokes, of the Indian Civil Service, he was born in Worcestershire 58 years ago, and was educated at Cheltenham and Oakham Schools. Passing on to the University College, London, he became M.R.C.S. in 1877 and L.R.C.P. in 1878. He was married at Maidenhead a year later and settled at Ditchling. He held a number of public appointments, and took quite an active interest in the affairs of the village and the immediate district. In his younger days he was a keen cricketer. He, too, was very fond of music, and in this connexion was always to the fore with his wife in local musical gatherings. His health had given cause for anxiety for some time.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced: Dr. Julius Pagel, extraordinary professor of the history of medicine in the University of Berlin, aged 60. In early professional life he held Poor-law and school appointments in Berlin. During this time he applied himself to the study of the historical aspect of medicine, and was fortunate enough to bring to light many mediæval manuscripts which had been until then unknown. After becoming a recognised lecturer on the history of medicine in the University he published numerous works and papers on the history and the ethics of medicine, and contributed to Neuburger's "Text-book of Medical History." He was also librarian of the Berlin Medical Society, and one of the editors of the international review of the history and geography of medicine, *Janus*. He was granted the title of professor in 1898, and in 1902 was appointed extraordinary professor.—Dr. Hermann Jastrowitz, an eminent Berlin alienist, at the age of 72. He was for many years assistant in the mental clinic of the Charité under Westphal. In collaboration with Leyden he published a well-known work on the anatomy of the brain. As a medical orator he was in great request at professional gatherings, and was secretary to the Society of Medicine and Pædiatry.—Dr. L. Benech, formerly inspecting medical officer of the French Military Medical Service.—Dr. E. Caventou, formerly President of the Paris Academy of Medicine.—Dr. von P. Ivanovski, formerly professor of pathological anatomy in the St. Petersburg Military Medical Academy.

THE NATIONAL INSURANCE ACT.

COMMITTEE ON TUBERCULOSIS.

THE Chancellor of the Exchequer is appointing a Committee to report at an early date upon the consideration of general policy in respect of the problem of tuberculosis in the United Kingdom, in its preventive, curative, and other aspects, which should guide the Government and local bodies in making or aiding provision for the treatment of tuberculosis in sanatoriums or other institutions or otherwise.

The Committee will consist of:—

Mr. Waldorf Astor, M.P. (Chairman).

Dr. Christopher Addison, M.P.

Dr. N. D. Bardswell, Medical Superintendent of the King Edward VII. Sanatorium, Midhurst.

Mr. David Davies, M.P., President of the King Edward VII. Welsh National Memorial Association.

Dr. A. Mearns Fraser, M.D., Medical Officer of Health, Portsmouth.

Dr. A. Latham, Physician at Mount Vernon Hospital for Consumption.

Dr. W. Leslie Mackenzie, Medical Member of the Local Government Board for Scotland.

Dr. J. C. McVail, Medical Member of the National Health Insurance Commission (Scotland).

Dr. W. J. Maguire, Medical Member of the National Health Insurance Commission (Ireland).

Sir George Newman, Chief Medical Officer of the Board of Education.

Dr. Arthur Newsholme, C.B., Medical Officer of the Local Government Board.

Dr. James Niven, Medical Officer of Health of Manchester.

Dr. Marcus Paterson, Medical Superintendent of the Bromptom Hospital Sanatorium, Frimley.

Dr. R. W. Philip, Physician of the Royal Victoria Consumption Hospital, Edinburgh.

Dr. H. Meredith Richards, Medical Member of the National Health Insurance Commission (Wales).

Mr. T. J. Stafford, C.B., Medical Member of the Local Government Board for Ireland.

Miss Jane Walker, M.D., Medical Superintendent of the East Anglian Sanatorium, Nayland, Colchester.

Mr. J. Smith Whitaker, Medical Member of the National Health Insurance Commission (England).

The Secretary to the Committee will be Mr. F. J. Willis, one of the assistant secretaries of the Local Government Board.

INCORPORATED SOCIETY OF HOSPITAL OFFICERS AND THE NATIONAL INSURANCE ACT.

A largely attended meeting of this society was held on Feb. 16th in the great hall of St. Bartholomew's Hospital, under the chairmanship of Mr. KERSHAW, to hear an address from Mr. Worthington Evans, M.P., on National Insurance and the Voluntary Hospitals, and to discuss the new Act.

The CHAIRMAN pointed out that one of the functions of the association was to discuss questions of interest to hospital workers with the view of coördinating those interests and securing unanimity of thought and action on questions of hospital policy.

Mr. WORTHINGTON EVANS then delivered an address on the new Act, with special reference to its effect upon hospital workers. The sections specially concerned were 12 and 21. In the first of these sections he defined the sources of income, the first of which depended upon an agreement having been made between the hospital and the society of the insured person, and also depended upon that person having no one dependent upon him. The second was a voluntary payment which might be made in the case of a doubly insured woman, of which latter there would not be many relatively. Under Section 21 there was a possible source of income—namely, that the Friendly Societies and the County Committees might (there was no compulsion) subscribe to the hospitals. The amount which those bodies might subscribe under Section 21 was two-ninths. He pointed out that the Act did not include any hospital benefit; there was a sickness benefit, a disablement benefit, a maternity benefit, a sanatorium benefit, the latter being limited to treatment in sanatoriums for tuberculosis and similar diseases, and such others as might hereafter be

specified. One very important fact stood out—namely, that for every male or female employee of a hospital, the hospital as such would have to make a weekly contribution. In a hospital with 250 beds there would be probably 32 males employed, and 128 females, or a total of 160, and the annual tax payable by the hospital for them would be £104. It seemed odd that these people, surrounded by all the appurtenances for good health, should be expected to be included when they had hitherto received any necessary medical treatment for nothing. He expressed the opinion that the attendance in the out-patient departments of hospitals would be less than hitherto. Some of those who had been in the habit of attending hospital would now be treated privately, and to the class of deposit contributors it would probably make no difference, as these would frequently be out of benefit. But he believed there would be a more numerous demand from in-patients than before. His reasons for saying that were two: It would be discovered that a large number of cases required and deserved treatment in a hospital for conditions which would not have been known of before, and which might have gone on to death without proper skilled attention. Secondly, if a doctor was compelled by contract to take in greater quantities of patients, that doctor would discover which patient was a troublesome person, and he would feel the temptation which the German doctors had fallen into of transferring such patients to a hospital. He did not believe there would be any great reduction in subscriptions to hospitals, but thought that the Act would quicken the public conscience as to the necessities of the less fortunate members of the community. In conclusion, he dealt in detail with the question of finance, and gave the proportions of contributions from working people in two provincial hospitals, the Royal Victoria Hospital at Newcastle-on-Tyne, and the Essex County Hospital at Colchester. In the first of these the income from all sources was £33,000, and the workmen's contributions amounted to £17,000. At the Colchester Hospital out of a total of £954 the workmen contributed £345. He also dealt with the Clapham Maternity Hospital as an example of a charity, one which was recognised as such in so far that the Income-tax Commissioners returned the tax to the institution. He advised that kind of hospital to make arrangements quickly with an approved society which would administer the benefits. With regard to men employed in hospitals, most men were in a society of some sort, so that before hospitals attempted to form a separate society for men they should ascertain whether there was any real demand for such on the part of their male staff. But with regard to the women, there was a special reason for the nurses having a society of their own, especially one with 5000 members or over, for then should there be any surplusage they would be entitled to one-third of it.

After various members had asked questions, Dr. F. J. POYNTON, speaking as a medical man on the staff of a hospital, remarked that a number of medical men on those staffs had signed a pledge not to work under the Act. If the medical profession refused to go on panels he wished to know what the position of medical men connected with large voluntary hospitals would be. As a voluntary worker in a voluntary institution he took it that one would not be technically working under the Act. He asked if some contributions were made to the hospital from insured people, as voluntary workers in that hospital would such doctors be considered as working under the Act? Of course patients were there and must be attended to, but a reply to his question would be very helpful. To this Mr. EVANS replied that the fact of being a voluntary worker almost defined the position. A contribution to a hospital by a Friendly Society was a mere grant; it conferred no rights whatever, and in the absence of any right there was no contract. Consequently a medical man would not put himself in opposition to his pledge by working for a hospital which had obtained such a contribution.

Mr. W. MCADAM ECCLES drew a comparison between the economically-worked State hospital in Germany and the voluntary hospitals of England. In a German State hospital of the same size as St. Bartholomew's, with 600 beds, there were 50 nurses, whereas St. Bartholomew's had 344.

Sir JOHN YOUNG dwelt upon the blessing of English voluntary hospitals and the degree of efficiency and skill attained, and expressed, in vigorous terms, his opinion of the Act and the undue haste with which he contended it had been passed into law.

BRITISH MEDICAL ASSOCIATION: SPECIAL REPRESENTATIVE MEETING.

The fourth meeting of the Representative Body since the introduction of the National Insurance scheme was held in the Court of Common Council Chamber of the Guildhall, London, on Tuesday and Wednesday, Feb. 20th and 21st. For permission to publish the following report from a member of our staff who was present we are indebted to the executive of the Association, who extended the same courtesy to THE LANCET at the previous Representative meetings.

The proceedings opened at 10 A.M. on Tuesday. An extremely heavy and complicated programme was before the Representative Body. Over 370 separate motions, amendments, and riders, mainly arising out of the report of the Council, were upon the agenda paper.

Immediately after the formal business had been concluded, the Chairman of the Representative Body rose to ask for an expression of feeling from the meeting as to his personal position. In order to settle this point at once he desired that a rider standing in the name of the Bradford Division, and numbered 359 on the agenda, should be taken before any other business. Otherwise, with that vote of censure hanging over him, he felt himself unequal to the conduct of the meeting. The rider was: "That Dr. Maclean be asked to resign the chair and a more vigorous advocate of our rights be elected." After considerable discussion it was decided to take this matter first, in accordance with Dr. Maclean's wish. Dr. J. A. Macdonald then took the chair for the time being. Each speaker who supported the vote of censure expressed his personal regret at being compelled to do so, and confined his criticisms to public grounds. No personal allegations whatsoever against Dr. Maclean were entertained. After a close discussion a card vote was demanded and agreed to.

Dr. MACLEAN, speaking in his own defence before the motion was put to the vote, said it had rarely been vouchsafed to any man to have such an opportunity as he had had that day of seeing himself as others saw him. Those members who thought well of him had stated his qualities in a positive sense too highly. On the other hand, he thought those who had taken the contrary view had put his shortcomings rather too strongly. In fact, he had never before realised so strongly the possibilities of one individual possessing the qualities of both Dr. Jekyll and Mr. Hyde. He had no sort of complaint to make as to the tone and content of the debate; it had been worthy of the highest traditions of the Representative meetings, but it also showed that he was right in asking that the matter should be dealt with at the opening of the proceedings. The main points in the indictment against him were first, *suppressio veri* in regard to the speech he made in reference to certain rumours; and second, an alleged misdirection of the Representative meeting. On the first point it was suggested that he wilfully misled the Representative meeting in that he gave the meeting to understand that no question had arisen regarding the possible receipt of an offer to any member of the Association to act as one of the Commissioners. The rumours which were in his mind when he spoke were to the effect that for prospective personal gain of various kinds the officials of the Association had immorally used their official position to give away points in the policy of the Association. No words of his were too strong to repudiate such a charge. Furthermore, he said that every man with whom he had the honour of being associated in the work was absolutely to be trusted in that and every other sense, and he saw no reason whatever to depart from the association of that sentence with what had gone before. As to the suppression of details of the interview with the Chancellor, Mr. Lloyd George inquired as to the Medical Secretary's abilities, and he (Dr. Maclean) gave his opinion. He made a communication to the Medical Secretary after that interview, and, rightly or wrongly, he regarded the conversation with Mr. Lloyd George, with its negative result, as confidential. The question had been put: If that were so, why did he feel called upon to refer to the fact at the Representative meeting? The reason was that the considerations governing the position were that an offer had then been definitely made by the Prime Minister to the Medical Secretary. The question being in a positive phase, when the Medical Secretary placed himself in the hands of the Council he (Dr. Maclean) thought it best to inform the Council of the whole of the

circumstances. As to the alleged misdirection of the Representative meeting, he admitted that, looked at in cold print, his answer to the question as to the duty of Representatives in the circumstances that had arisen was unwise and inaccurate. He confessed he had not the words of By-law 39 (3) in his mind at the time. The Representatives were faced with new facts and they asked what was to be their relation to them. In speaking as he did, he had in mind the margin of discretion left to Representatives in their actions. He left himself entirely in the hands of the meeting in these matters, but to import into either of the two indictments a deliberate attempt on his part to mislead the Representatives or to deceive anybody was very unjust. He knew his shortcomings, but he could say, with an absolutely free conscience, that to the best of his ability he had served the profession faithfully and well. Dr. Maclean added that whatever might be the result of the vote it was absolutely unfounded to suppose that he would be turned from a friend into an enemy; whatever action the meeting took he would deflect never by one iota from the dominant principle that had been in his mind, that he would stand by the cause of the profession and would devote himself in every possible way within the limit of his time and ability to serving the cause of the men whose interests he had at heart.

After an adjournment for the counting of votes the result was announced as follows: For the rider, 63 constituencies, representing 6327 members; against, 78 constituencies, representing 7597 members. The vote of censure was therefore lost. Eight Representatives present did not vote. At 12.30 P.M. Dr. Maclean resumed the chair amidst applause, and asked all present to forget what had just happened and to stand shoulder to shoulder in the face of the present critical situation. Votes of condolence and regret with the families of Lord Lister and Sir Henry Butlin were carried in silence, all standing up. A special Agenda Committee was then appointed to evolve order out of the immense mass of business before the meeting, and a two hours' adjournment was made for this purpose and for luncheon.

On the resumption, business connected with standing orders was disposed of, and the Council's and other reports were formally received. The Representative Body then went into committee under the able chairmanship of Mr. T. Jenner Verrall. The order of business recommended by the Agenda Committee was agreed to. In view of the vast number of items each could not be discussed seriatim. It was decided that the first subject to be settled should be that of Recommendation VI. in the Council's report—viz., the future State Sickness Insurance Committee, its functions, powers, and constitution.

After keen and prolonged discussion the recommendation of the Council was passed in the following amended form:—

That a State Sickness Insurance Committee be appointed to consider and report to the Council on all matters connected with the National Insurance Act or a Public Medical Service. That the State Sickness Insurance Committee consist of (*a*) 24 members (the majority of whom shall be general practitioners), elected by the Representative Body, (*b*) the *ex-officio* members, (*c*) two women medical practitioners to be co-opted by the Committee, one of whom shall be nominated by the Northern Association of Medical Women, the other by the Association of Registered Medical Women; and that the Committee be empowered to add to its numbers for special purposes not more than four additional members.

An amendment, designed to place all executive power in connexion with the Act in the hands of the new Committee, was proposed by Dr. T. A. HELME, but was eventually negatived. The method of choosing the 24 members to be elected by the Representative Body was considered until after the dinner interval. The meeting then considered Recommendation I. of the Council's report.

Recommendation I. of the Council's report was next taken. An amendment, "That the Council be instructed to at once cease negotiations with the Government and the Commissioners," was debated and negatived by a very large majority. A further amendment, "That the Council be instructed to inform the Government and the Insurance Commissioners that until the minimum demands of the profession are placed beyond doubt in an amending Act of Parliament, further negotiations will be useless," also raised a plain issue, and both sides were vigorously represented. The vote was taken by roll-call, and the result was that the amendment was lost by 81 votes to 58. This closed the first day's proceedings, and the meeting adjourned at 11.15 P.M.

On Wednesday morning, after the minutes of the previous day had been passed, consideration of amendments arising out of Recommendation I. was resumed, and nominations for the election of members of the new State Sickness Insurance Committee were received. An important amendment standing in the name of the Winchester and other Divisions was closely debated. It was indicated that if the original amendment were modified a basis of unanimity might be reached. To this end the proposer agreed to the following revised form of his motion:—

That this Representative meeting direct the Council to inform in plain and unmistakable language the Commissioners appointed under the Insurance Act, 1911, that unless the minimum demands of the Association be embodied in the Regulations to be issued by the Commissioners in such a manner as shall be effectual and permanent, with a view to having the same embodied in an amending Act, it is the intention of the British Medical Association to call upon its members and upon all other medical practitioners to decline to form panels or undertake any other medical duties which may be assigned to them under the Act, in conformity with the undertaking which has already been signed by over 26,000 medical practitioners.

The vote was again taken by roll-call and the amendment was declared carried, amidst great applause, by 159 votes to 3, and as a substantive motion it was carried unanimously. Thus Recommendation I. of the Council's report was replaced by the revised amendment.

There was a very strong feeling that an insistence upon the retention of all disciplinary powers in the hands of the profession itself should become one of the foremost demands of the profession. After various forms of words had been considered, it was resolved that the power of removing a practitioner's name from the panel and the power of dealing with all complaints against medical men on the panel should be vested in the Local Medical Committee, with right of appeal to a Central Medical Board, to be appointed for the purpose. This motion was adopted unanimously as a rider to the previous resolution.

The question of dispensing was then discussed and a rider to the following effect was carried:—

That dispensing as hitherto should be done or arranged for by the medical practitioner for his own patients, should he so desire, and paid for at the scale of tariff rate agreed upon for pharmacists by the Pharmaceutical Society.

The question of scale and method of payment for medical benefits then arose. The Chairman of Council warned the meeting that in submitting terms of remuneration to the Commissioners the profession should not merely state the sums which it thought just, but should give its reasons for insisting upon them.

Dr. J. PEARCE, chairman of Remuneration Sub-committee, then spoke by invitation, and the discussion was maintained for some time. It was felt widely that this matter should be decided by the constituencies themselves.

It was resolved:—

That the policy of the Association be to claim 8*s.* 6*d.* as a minimum capitation fee, not including extras and medicine, for members of approved societies and to claim the recognition of payment per attendance, in which case the fees must be on such a basis as shall be deemed an equivalent by the State Sickness Insurance Committee, with recognition of a £2 maximum income-limit.

The fifth recommendation, intended to leave the Council to deal with questions of underselling, was next taken and finally passed in an amended form. Then followed a debate upon the desirability of or of not taking part in Advisory Committees to assist the Commissioners in framing regulations. Here was revealed a sharp division of opinion. The discussion centred around a proposed rider:—

That the Council be instructed to take all possible steps to ensure that no members of the profession shall hold office or take any part in any advisory, administrative, or medical work under the Act until such time as the minimum demands of the profession are unreservedly conceded in such a manner that they cannot be altered or withdrawn save by Act of Parliament.

This was voted upon by roll call and was lost by 70 to 44.

The rejection led to the passing of a rider to ensure suitable representation upon the Advisory Committees; and another to secure their resignation if the profession's demands were not conceded, was also passed.

Recommendations IV., II., and III. were then carried practically as they stood before the adjournment.

It was found impossible to complete the business by Wednesday night, and an adjournment was made at 11 o'clock until Thursday morning.

The meeting was still in progress at the time of our going to press.

Medical News.

METROPOLITAN POLICE SURGEONS' ASSOCIATION.—The annual meeting of this association was held at Frascati's Restaurant on Feb. 16th. During the year 1911 two very instructive gatherings were organised, the first being held at the British Medical Association offices on May 4th, when Dr. Frederick J. Smith, lecturer on forensic medicine at the London Hospital Medical School, gave a demonstration on Poisons, their Detection and Post-mortem Appearances. The second, by the kind permission of the Metropolitan Asylums Board, was held in their board room on Nov. 8th, when a demonstration on Blood Staining and Examinations, Sera Reactions, and other Tests of Medico-Legal Importance was given by Dr. J. Milner-Adams. Mr. V. A. Jaynes was elected president for the coming year, Mr. Peter Cooper vice-president, and Mr. H. Bott treasurer. The honorary secretaries (Dr. C. Owen Fowler and Dr. G. Nicol Henry) were unanimously re-elected, and the four vacancies on the council were filled by the election of Mr. T. L. Archer, Dr. H. J. Ilott, Dr. W. Bower, and Mr. C. J. Stocker. During the year death removed Dr. C. Pinel Gallie, the honorary treasurer, in whom a genial friend and a valued officer of the association was lost. The meeting was followed by the annual dinner, which was under the chairmanship of the President, Dr. A. Dumville Roe, who was supported by Sir Frederick Wodehouse, K.C.V.O., C.B., the Assistant Commissioner of the Metropolitan Police; Mr. Clinton T. Dent, the chief surgeon; Mr. H. R. Oswald, the coroner for South-East London; Mr. Hedderwick, and Dr. F. J. Smith. After the usual toasts had been honoured Mr. Oswald proposed "The Metropolitan Police Surgeons' Association." He remarked on the great help that he as a coroner received in his court from divisional surgeons, and complimented the association on the work it was doing, especially in holding meetings for the consideration of professional matters, such as the detection of poisons and the sera reactions of blood, which would be of great help to them when giving evidence. He commented on the preventive treatment of tubercular disease, and on the great advantage that beds were now available at the Frimley Sanatorium for the reception of early cases of phthisis that might occur in members of the force. Mr. Jaynes responded. Dr. Owen Fowler gave the toast of "The Commissioners and the Receiver," which was replied to by Sir Frederick Wodehouse, who made mention of the newly to be enrolled civilian force of special constables. Mr. Bott proposed "The Chief Surgeon, Mr. Dent," and pointed out what a friend not only divisional surgeons but also police officers had in him. He facetiously remarked on the need of adequate remuneration for the profession, so that they might in future be able to pay modern taxes and have sufficient to attend the annual dinner. Mr. Dent made an entertaining reply. The dinner concluded with the toasts of the health of the guests, to which Mr. Hedderwick suitably replied, and that of "The President," proposed by Dr. F. G. Crookshank. An enjoyable concert programme was provided by Miss Edith Kirkwood, Mr. Charles C. Rose, and Miss Beatrice Eveline, the 'cello solos of the latter receiving a well-merited encore.

LITERARY INTELLIGENCE.—Messrs. W. B. Saunders Company have arranged to publish in serial form the Surgical Clinics of Dr. John B. Murphy at the Mercy Hospital, Chicago. The Clinics will be published bi-monthly. The subscription price will be 35s. net per year of six issues, each number containing about 130 octavo pages, illustrated. The first number appears this month.—Messrs. Constable and Co. will commence the publication in April next of a new review, to be entitled "Bedrock," "a quarterly review of scientific thought." The review will appear as an organ devoted to the full discussion of such subjects as the effect on the race of native and foreign disease, of intemperance, of city life and luxury; the fitness of women for government; the real nature of the psychological and physiological difference between sexes, races, and classes; the present relation of science to religion; theories of evolution and heredity; the trend of scientific and mechanical research, invention, and development; in fact, with all the greater problems of modern science in a manner fundamentally scientific, and, the editors hope, also generally interesting to an educated public. It will further make a feature of notes on current research work and reviews of selected scientific books. The editorial committee consists of Sir Bryan Donkin, Professor E. B. Poulton, Hope professor of zoology in the University of Oxford, Professor H. H. Turner, Savilian professor of astronomy in the University of Oxford, and Dr. G. Archdall Reid. The acting editor will be Mr. H. B. Grylls.—Mr. Heinemann will publish shortly "Microbes and Toxins in Nature," by Dr. Burnet, of the Pasteur Institute, with a preface by Professor E. Metchnikoff, author of "The Nature of Man"; "Animal Life in Africa," by Major J. Stevenson Hamilton, F.R.G.S., C.M.Z.S., descriptive of the fauna of the Ethiopian region; a book by Earl Russell on "Divorce"; and an English edition of the novels of Dostoevsky, translated by Mrs. Garnett.—The Cambridge University Press announce the issue of the new "Encyclopædia Britannica" in fortnightly parts at 3s. 6d. each. Each part will consist of about 200 quarto pages, and will be bound in stout boards.

INQUEST ON A MEDICAL MAN.—On Feb. 16th an inquest was held at Wandsworth town-hall by Mr. John Troutbeck with reference to the death of Dr. Horace Jeaffreson, aged 75, who died under tragic circumstances at his house at Wandsworth on Feb. 14th. Mr. H. C. Jeaffreson, a nephew, said that the deceased retired from practice some years ago. He had not been in good health lately, though when witness last saw him about a fortnight before his death he seemed better than usual. He was not so sane as he was 20 years ago, but he was able to talk rationally on ordinary subjects. Mrs. Charlotte Simpson, housekeeper to the deceased, whom she had known 35 years, said he suffered from delusions and nightmare, and fancied he saw faces and that he was poor. The night attendant said that on her return after a temporary absence early on the morning of the 14th she noticed a change in the face of the deceased. Turning back the bedclothes to feel if the heart was beating she saw a penknife sticking in a wound in his right groin. Dr. F. H. Carter said that he went into partnership with Dr. Jeaffreson 27 years ago. Dr. Jeaffreson retired in 1903. Lately he had been mentally depressed, though on some points his mind was alert. He suffered from hydrocele on both sides, and had been in the habit of tapping it himself on the right side when necessary. Witness used to operate on the left side. Some time ago witness and another medical man prescribed small doses of morphia. Deceased used to inject the drug himself. He was most careful and never exceeded four minims. Dr. Jeaffreson had also co-operated courageously with his advisers in reducing the dose, though morphia added enormously to his comfort. For some weeks before his death he had not used the drug. He had no suicidal tendency; on the contrary, he had a great horror of suicide. If he had intended to end his life by piercing the femoral artery he went very wide of the mark for one who knew his anatomy well. The artery was cut, but not deliberately witness thought. Dr. R. S. Trevor, who conducted the necropsy, explained that the wound was of very slight depth. It was an inch and a half in length, and its centre was an inch away from the femoral artery, which the point of the knife had reached under the skin. Death was due to heart failure. The jury returned a verdict of death from misadventure, and expressed the opinion that Dr. Jeaffreson had no intention of cutting the artery.

SEVENTEENTH INTERNATIONAL CONGRESS OF MEDICINE.—A meeting of the organisation committee of the Congress was held on Monday, Feb. 19th, at 5 P.M., in the library of the Royal College of Physicians of London. Sir Thomas Barlow presided and 42 members of the committee were present. A provisional programme of subjects for discussion was agreed upon. This will be published in THE LANCET at an early date.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Medical Men and the Insurance Act.

THE developments in the hostility of medical men towards the Insurance Act are closely watched by Members of Parliament. Many of them have read the proposed Bill framed by the British Medical Association Reform Committee, and it is evident that if the passage of the Act had been delayed for a year the difficulties of the Government in pressing it through would have been very greatly increased. The difficulties have now been transferred from the

legislative to the administrative sphere. That, however, does not mean that the attention of Parliament will be diverted from the struggle going on in the country. On the first day of the session Mr. BONAR LAW, the Leader of the Opposition in the House of Commons, criticised briefly but sharply the London Opera House speech of Mr. LLOYD GEORGE. The passage may be quoted: "Then there are the poor doctors—the poor innocent creatures who do not know their right hand from their left, who know nothing about their own business, and are misled by wily politicians into opposing the beneficent methods of the Chancellor of the Exchequer." Said Mr. BONAR LAW: "It is very interesting. How does the right honourable gentleman now deal with the doctors? The time for cajolery has gone. We all remember that at one stage of the proceedings how every second day inspired paragraphs appeared in the Radical papers to the effect that the eloquence of the Chancellor had squared the doctors. All that has gone now. Blandishment is of no more use, and they are to be brought to heel by threats—I am bound to say by somewhat brutal threats. There are two observations to be made on this question. The first is that the doctors will really be as simple as the right honourable gentleman imagines them to be, if they regard those threats as anything but the wild outburst of impotent rage. Secondly, if he can carry out these threats, which I do not think is possible, then the Insurance Act which will come into operation will be an entirely different measure from the one which went through the House of Commons."

Public Health and Local Administration.

Amongst the Blue-books presented to Parliament in the early days of the session was Part II. of the Annual Report of the Local Government Board for 1910-11. One of the sections relates to public health and local administration. Amongst the many interesting topics with which the section deals are the housing of the working-classes, town planning, infectious disease, hospitals, medical officers of health and their reports, and food- and water-supplies.

Tropical Diseases Research Fund.

The report of the Advisory Committee for the Tropical Diseases Research Fund for the year 1911 is now issued as a Parliamentary Blue-book. The Research Fund has now a revenue of £3345, of which £1000 is received from the Imperial Government. This sum did not quite meet the expenditure of the year, which amounted to £3795 6s. 8d. It was allocated as follows: London School of Tropical Medicine, £1533 6s. 8d.; Liverpool School of Tropical Medicine, £1262; University of London, £750; and University of Cambridge, £250. The excess of expenditure over income was met by drawing on the accumulated balance of the Fund. Attention is called by the committee to the urgent necessity of further sums being placed at its disposal in view of the many important questions calling for further research. During the year the committee was consulted on various matters by the Secretary of State for the Colonies, including the appointment of an assistant in the research laboratory at Yaba and the selection of an officer to inquire into the diseases of vomiting sickness and peripheral neuritis which are prevalent in Jamaica. Returns in regard to mosquito-borne disease in various colonies and protectorates have been before the committee, but these are not yet complete. The report states, in conclusion, that the committee notes with pleasure the high standard of work which is being done in various colonial laboratories, and which shows the increased interest in research work which is being taken by the officers in charge. The committee is of opinion that the experiment of setting up these laboratories has fully justified itself, and that it deserves all possible encouragement.

Industrial Poisoning.

A copy has been presented to the House of Commons of the preliminary tables and cases of industrial poisoning, fatal and non-fatal accidents, and dangerous occurrences in factories, workshops, &c., during the year 1911.

Feeble-minded Persons (Control) Bill.

Amongst the Bills presented by private members in the House of Commons this session is one "to provide for the better care and protection of feeble-minded persons." Mr. STEWART introduced the Bill and it was read a first time. The Prime Minister has promised to deal by legislation with this question during the current session.

The Midwives Act.

As shown by the report of the Central Midwives Board for the year 1910-11 which has just been presented to Parliament, the names on the Midwives Roll on March 31st, 1911, amounted to 31,673, an increase for the year of 2464. Of the total 10,412 had passed the Board's examination and 9655 had been admitted to the Roll in virtue of prior certification under Section 2 of the Midwives Act. The total number of trained midwives was, therefore, 20,067, as against 11,606 untrained, the percentages being 63·4 and 36·6. The corresponding percentages for the previous year were 61 and 39. A large proportion, however, of the trained women do not practise as midwives, and if the number of practising midwives only be considered the untrained women would be found to be in a considerable majority. The number of penal cases dealt with by the Board showed a steady increase, but the report attributes this to the greater thoroughness in administration shown by some of the supervising authorities. The reports of the medical officers of health, it also appears, uniformly bore witness to progressive improvement in the methods of practice of untrained midwives due to the care and assiduity with which the inspectors had instructed and helped those under their charge. The words of the county medical officer of health of Salop are quoted as expressing the universal opinion of those engaged in the administration of the Midwives Act. "Another year of experience," that gentleman reported, "has confirmed me in the opinion that this Act is a measure of the greatest importance, and that the benefit of it will be felt with increasing force from year to year as the untrained midwives are replaced by trained ones." Various points in connexion with the administration and suggested improvement of the Act are discussed in the report.

HOUSE OF COMMONS.

FRIDAY, FEB. 16TH.

The Medical Treatment of School Children.

Mr. HAYES FISHER, in moving an amendment to the motion for an address in reply to the speech from the Throne, drew attention to local taxation. In the course of his speech he asked the Chancellor of the Exchequer to make an interim grant to cover a part of the expenditure on the reduction of the size of classes in metropolitan schools, and also the medical treatment of school children, which, although optional for local authorities, was made a subject of considerable pressure by the Board of Education.

Mr. LLOYD GEORGE, in the course of his reply, said that in regard to the burdens cast by the present Government on the London ratepayer, the feeding of children and medical inspection together did not come to more than £100,000.

Mr. HAYES FISHER: Will the right honourable gentleman deal with the infinitely larger items of medical treatment and Article XIV.?

Mr. LLOYD GEORGE: That is not a burden. It is purely voluntary. It is if the local authorities wish to undertake the responsibility, and personally I should like them to do so. But let me remind the right honourable gentleman that I promised two or three months ago that there should be a subvention to those councils in respect of medical treatment. The right honourable gentleman has overlooked that fact altogether.

Mr. HAYES FISHER: I did not know that the promise had ever been definitely made.

Mr. LLOYD GEORGE: It could not have been more definite. I will just tell those in the House who judge me fairly to wait until they see the education estimates.' So far as the cost of medical treatment is concerned the Government has not merely promised definitely to make a subvention to it, but it is on the estimates.

MONDAY, FEB. 19TH.

The Sale of Milk.

Mr. BARNSTON asked the President of the Board of Agriculture whether he was now in a position to state the result of the inquiries which the Board had been making as to the manner in which the existing provisions of the law relating to the sale of milk were at present administered by local authorities.—Mr. RUNCIMAN replied: The inquiries are still proceeding. A considerable amount of information has been obtained, and I am in communication with the Local Government Board as to the steps to be taken to put matters on a better footing.

Food and the Parcel Post.

Mr. TOUCHE asked the Postmaster-General whether precautions were taken to secure that the soft bags now used for the conveyance of parcels, including articles of food, were kept in a clean and sanitary condition.—Mr. H. SAMUEL answered: The reply is in the affirmative. I am advised that bags can be more thoroughly cleaned than baskets.

The Prevalence of Anthrax.

Mr. CHARLES BATHURST asked the Home Secretary to state (1) how many cases of anthrax among human beings occurred in 1911, and how this number compared with those occurring in 1909 and 1910 respectively; and (2) in how many cases during the period of increased prevalence of anthrax among British farm animals in 1911 human anthrax was traceable to contact with such animals or their carcases or skins, and whether such cases were in excess of those occurring in 1910.—Mr. MCKENNA said in reply: The Home Office is only notified of cases of anthrax occurring in factories and workshops. The number of such cases in 1909 was 56; in 1910, 51; and in 1911, 64. Of these, two in 1910 and one in 1911 were reported to be due to British hides. The Local Government Board, whom I have consulted as to the number of other cases of anthrax, inform me that there are no complete statistics, anthrax in human beings not being generally notifiable, but that the industrial cases referred to above apparently constitute the large majority.

The Care of the Feeble-minded.

Mr. EVELYN CECIL asked the Prime Minister whether it was the intention of His Majesty's Government to introduce a Bill during this session for the better care and control of the feeble-minded on the lines of the Report of the Royal Commission issued in 1908.—Mr. ASQUITH replied: The answer is in the affirmative.

Insurance Act Regulations.

Mr. G. LOCKER-LAMPSON asked the Secretary to the Treasury when the regulations under the National Insurance Act would be issued by the Commissioners.—Mr. MASTERMAN said in reply: I hope in the course of this week to lay on the table of the House regulations prescribing the character of the constitution of unregistered societies seeking approval in accordance with Section 23 (1) of the Act. Other regulations will be laid from time to time as speedily as possible.

TUESDAY, FEB. 20TH.

National Insurance Topics.

Mr. NEWMAN asked the Financial Secretary to the War Office whether, in the event of the National Insurance Act being brought into operation, he could state whether the present privileges with regard to free medical attendance on wives, children, and step-children, as well as on themselves, now enjoyed by army pensioners employed at ordnance factories when residing within one mile of the factory, would

be continued.—Mr. TENNANT replied: The question is under consideration.

The Marquis of TULLIBARDINE asked the Secretary to the Treasury what arrangements were made under the National Insurance Act for providing medical attendance for a contributor who fell ill away from his own locality, as in the case of a Scottish contributor residing temporarily in England.—Mr. MASTERMAN said in reply: It is clearly impossible to state at present what precise form the arrangements will take for dealing with the contingencies referred to in the question. The matter will be for the consideration of the different local Insurance Committees, subject to the regulations and to the approval of the Insurance Commissioners.

Sickness at Osborne College.

Mr. HUNT asked the Civil Lord of the Admiralty whether there were at present at Osborne College two cases of typhoid fever, two of bronchitis, one of pneumonia, and one of diphtheria; whether there were in the College altogether 70 people on the sick list; and, if so, what steps were being taken to prevent the various diseases from spreading.—Mr. LAMBERT answered: There is one case of typhoid fever at Osborne, one of bronchitis, two of pneumonia, and none of diphtheria. On the 18th inst. 72 cadets were on the sick list, almost all suffering from minor ailments. The case of typhoid fever is isolated and the usual precautions are being taken.

WEDNESDAY, FEB. 21ST.

Scottish and Irish Surgeons in England.

Mr. GINNELL asked the President of the Local Government Board whether he was aware of the exclusion of Irish and Scottish surgeons from some surgical appointments in England on the ground of an alleged inferiority of their degrees; if there was real professional inferiority, whether he would say in what it consisted; and, if the allegation was unfounded, whether the Board would withhold its sanction of surgical appointments made subject to the exclusion complained of within the jurisdiction of the Board.—Mr. BURNS said in reply: I am not sure to what appointments the honourable member refers. Perhaps he will be good enough to communicate with me on the subject. In my department we take no notice of the nationality or religion of the applicants. On their merits only are they appointed.

BOOKS, ETC., RECEIVED.

ALLEN, GEORGE, AND CO., LIMITED, Ruskin House, 44 and 45, Rathbone-place, London, W.

Hegel's Charlatanism Exposed. By M. Kelly, M.A., M.D. (late Major, R.A.M.C.). Price 2s. 6d.

BAILLIÈRE, TINDALL, AND COX, London.

Direct Laryngoscopy, Bronchoscopy, and Œsophagoscopy. By Dr. W. Brünings. Translated and edited by W. G. Howarth, M.A., M.B., B.C. Camb., F.R.C.S. Eng., Surgeon in Charge of the Throat Department at St. Thomas's Hospital and the Queen's Hospital for Children. Price 15s. net.

CHURCHILL, J. AND A., London.

A Simple Method of Water Analysis, especially Designed for the Use of Medical Officers of Health. By John C. Thresh, M.D. Vic., D.Sc. Lond., D.P.H. Camb. Seventh edition. Price 2s. 6d. net.

FORDHAM UNIVERSITY PRESS, New York.

Old-Time Makers of Medicine. The Story of the Students and Teachers of the Sciences related to Medicine during the Middle Ages. By James J. Walsh, K.C.St.G., M.D., Ph.D., LL.D., Litt.D., Sc.D., Dean and Professor of Nervous Diseases and of the History of Medicine at Fordham University School of Medicine. Price $2.00 net.

GLAISHER, H. J., 55 and 57, Wigmore-street, London.

The Feast of Herbs (Vegetarian Cookery). Price 1s. 6d. net.

ISTHMIAN CANAL COMMISSION PRESS, Quartermaster's Department, Mount Hope, C.Z.

Isthmian Canal Commission. Sanitary Department. Proceedings of the Canal Zone Medical Association. For the Half Year, October, 1910, to March, 1911. Vol. III., Part 2. Price not stated.

KING, P. S., AND SON, Orchard House, Westminster, London, S.W.

Shop Slavery and Emancipation. A Revolutionary Appeal to the Educated Young Men of the Middle Class. By William Paine. With an Introduction by H. G. Wells. Price 1s. net.

How to Start a Women's Lodging Home. By Mary Higgs, Bent House, Oldham. Price 3d., post free.

Problems of Boy Life. Edited by J. H. Whitehouse, M.P. With an Introduction by the Right Reverend John Percival, Bishop of Hereford. Price 10s. 6d. net.

LAYTON, CHARLES AND EDWIN, 56, Farringdon-street, London, E.C.

Handy Newspaper List. 1912. Price 6d.

LEWIS, H. K., London.

Manual of Operative Surgery. By John Fairbairn Binnie, A.M., C.M. Aberdeen, Surgeon to the General Hospital, Kansas City, Mo. Fifth edition, revised and enlarged. Price 30s. net.

MACMILLAN AND CO., LIMITED, London.

The Modern Prison Curriculum. A General Review of our Penal System. By R. F. Quinton, M.D., late Governor and Medical Officer of H.M. Prison, Holloway. Price 5s. net.

MANSFIELD AND CO., E., 1, McLean's Buildings, New-street-square, London, E.C.

The Personal Calendar. A Monthly Index to Political, Official, and Social Changes. No. 1. January, 1912. With December Supplement. Price 6d. monthly. Post free 7d.

METHUEN AND CO., LIMITED, London.

Round the Red Lamp. Being Facts and Fancies of Medical Life. By A. Conan Doyle. Price 1s. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

AGASSIZ, C. D. S., M.B., Ch.B. Aberd., D.P.H., has been appointed Resident Medical Officer at the City of London Hospital for Diseases of the Chest.

DAVIES, J. P. H., B.C. Cantab., M.R.C.S., L.R.C.P. Lond., D.P.H., has been appointed House Physician at the City of London Hospital for Diseases of the Chest.

DOBRASHIAN, G. M., M.B., B.S. Lond., has been appointed Resident Medical Officer at the Ransom Sanatorium for Consumptives, Sherwood Forest, Mansfield.

HARRIS, H. A., M.R.C.S., L.R.C.P. Lond., has been appointed Resident Medical Officer at the British Lying-in Hospital.

MILLAR, H. S., M.D., B.Ch., B.A.O. Dub., has been appointed House Surgeon at the General Infirmary, Worcester.

ROACH, W. FROTHINGHAM, M.D., C.M. Montreal, L.A.H. Dub., has been appointed a Demonstrator in the Public Health Department of the University of London at King's College.

SMITH, G. F. R., M.B., Ch.B. Liverp., M.B., B.S. Lond., has been appointed Honorary Assistant Surgeon to the Royal Alexandra Hospital, Rhyl, North Wales.

WINTERBOTHAM, JOHN, M.R.C.S., L.R.C.P. Lond., has been appointed House Physician at the City of London Hospital for Diseases of the Chest.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BANBURY, HORTON INFIRMARY.—House Surgeon. Salary £30 per annum, with board and residence.

BEDFORD COUNTY HOSPITAL.—Assistant House Surgeon. Salary £80 per annum, with board, lodging, and laundry.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Second and Third House Surgeons. Salaries £80 and £75 per annum respectively, with board, rooms, and laundry.

BRADFORD ROYAL INFIRMARY.—Two House Surgeons, unmarried. Salary £100 per annum, with board, residence, and washing.

BRISTOL EYE HOSPITAL.—House Surgeon. Salary £80 per annum, with board and residence.

BRISTOL GENERAL HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board, residence, &c.

BURTON-ON-TRENT INFIRMARY.—House Surgeon. Salary £120 per annum, with rooms, board, coal, and light.

BURY ST. EDMUNDS, WEST SUFFOLK GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and laundry.

CANCER HOSPITAL (FREE), Fulham-road, S.W.—Assistant Pathologist. Salary £350 per annum.

CARLISLE, CUMBERLAND INFIRMARY.—Resident Medical Officer. Salary at rate of £80 and £100 per annum respectively, with board, lodging, and washing.

CHARING CROSS HOSPITAL.—Physician.

CLYDEBANK, BLAWARTHILL HOSPITAL, Yoker.—Medical Officer. Salary £125 per annum.

DAVOS, QUEEN ALEXANDRA SANATORIUM.—Junior Medical Officer. Salary £100 per annum, with board, residence, and washing.

DERBY COUNTY ASYLUM, Mickleover.—Junior Assistant Medical Officer. Salary £120 per annum, with apartments, board, washing, and attendance.

DEWSBURY AND DISTRICT GENERAL INFIRMARY.—House Surgeon. Salary £120 per annum, with board, residence, and washing.

DONCASTER, ROYAL INFIRMARY AND DISPENSARY.—House Surgeon. Salary £150 per annum, with board, apartments, and laundry.

DORCHESTER, DORSET COUNTY HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and lodging.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, London, S.E.—House Physician for six months. Salary at rate of £75 per annum, with board, residence, and washing.

GLASGOW MATERNITY AND WOMEN'S HOSPITAL.—Three Indoor House Surgeons for six months and Three Outdoor House Surgeons for three months.

INFANTS HOSPITAL, Vincent-square, Westminster.—Assistant Physician.

LANCASHIRE EDUCATION COMMITTEE.—School Medical Inspector. Salary £250 per annum.

LARBERT, STIRLING DISTRICT ASYLUM.—Second Assistant Medical Officer. Salary £140 per annum, with board, lodging, and laundry.

LEICESTER POOR-LAW INFIRMARY.—Second Resident Assistant Medical Officer. Salary £130 per annum, with rations, furnished apartments, and washing.

LIVERPOOL INFIRMARY FOR CHILDREN.—Resident House Surgeon and Resident House Physician. Salary at rate of £60 per annum, with board and lodging.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Two House Physicians and Three House Surgeons, all for six months. Salary at rate of £60 per annum, with board and residence.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL AND DISPENSARY.—Resident House Surgeon. Salary £100 per annum, with rooms, attendance, board, and washing.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £60 per annum, with board and residence.

MANCHESTER CHILDREN'S HOSPITAL, Gartside-street. — Assistant Medical Officer for six months. Salary £50 per annum.
MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Resident Medical Officer for six months, unmarried. Salary £40.
NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon, unmarried. Salary £160 per annum, with apartments, attendance, light, and fuel.
OXFORD, COMBINED DISTRICTS IN THE COUNTY OF OXFORD.—Medical Officer of Health. Salary £500 per annum.
OXFORD, RADCLIFFE INFIRMARY AND COUNTY HOSPITAL.—Casualty Officer, unmarried for six months. Salary at rate of £80 per annum, with board, &c.
PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician for six months. Salary £75 per annum, with board, residence, and washing.
PRESCOT UNION WORKHOUSE AND INFIRMARY, Whiston, Prescot, near Liverpool.—Resident Assistant Medical Officer, unmarried. Salary £120 per annum, with apartments, board, washing, attendance, &c.
PRESTON ROYAL INFIRMARY.—Junior House Surgeon, unmarried, for six months. Salary £60 per annum, with board, residence, and washing.
QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, N.E.—House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.
ROBBEN ISLAND LEPER SETTLEMENT, Cape of Good Hope.—Bacteriologist. Salary £400 per annum, with board and lodging.
ROYAL NAVAL MEDICAL SERVICE.—Fifteen Appointments.
RYDE, ROYAL ISLE OF WIGHT COUNTY HOSPITAL.—Resident House Surgeon, unmarried. Salary £100 per annum.
SALISBURY, FISHERTON HOUSE.—Junior Assistant Medical Officer, unmarried. Salary £120 per annum, with board, apartments, &c.
SHEFFIELD UNION HOSPITAL, Firvale.—Resident Assistant Medical Officer, unmarried. Salary £100 per annum, with apartments and rations.
SHREWSBURY, SALOP INFIRMARY (COUNTY HOSPITAL).—House Physician Salary at rate of £70 per annum, with board and apartments.
SLEAFORD, KESTEVEN COUNTY ASYLUM.—Assistant Medical Officer. Salary £150 per annum, with board, &c.
STIRLING, COUNTY OF.—Medical Officer of Health. Salary £500 per annum.
THROAT HOSPITAL, Golden-square, W.—Resident House Surgeon. Salary £75 per annum, with board, residence, and laundry. Also Surgical Registrar.
TOOTING BEC ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £150 per annum, with board, lodging, and washing.
WALSALL AND DISTRICT HOSPITAL.—House Surgeon. Salary £120 per annum, with board, residence, and laundry. Also House Physician and Casualty Officer. Salary £90 per annum, with board, residence, and laundry.
WARRINGTON INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary at rate of £100 per annum, with board, lodging, and laundry.
WESTERN GENERAL DISPENSARY, Marylebone-road, N.W.—Honorary Physician.
WEST LONDON HOSPITAL, Hammersmith-road, W.—Two House Physicians and Three House Surgeons for six months. Board, lodging, and laundry provided.
WEST SUSSEX SOUTHERN UNITED (M.O.H.) DISTRICTS.—Medical Officer of Health. Salary at rate of £350 per annum. Also in connexion with the above, Assistant School Medical Officer for the West Sussex and Chichester Joint Education Committee. Salary at rate of £150 per annum.
WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Resident Medical Officer. Salary at rate of £100 per annum, with board, rooms, and laundry.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Clitheroe, in the county of Lancs; at Frome, in the county of Somerset; at Millbrook, in the county of Cornwall; at Schull, in the county of Cork; and at Staplehurst, in the county of Kent.

Births, Marriages, and Deaths.

MARRIAGES.

MURRAY—HULL.—On Feb. 20th, at St. Gabriel's, Warwick-square, S.W., Captain J. H. Murray, I.M.S., to Freda, daughter of the late Commander T. A. Hull, R.N.
SPROTT—BROSTER.—On Feb. 15th, at St. Margaret's, Westminster, by Canon Hensley Henson, D.D., Ernest W. Sprott, son of the late Walter Sprott, Esq., of Mayfield, Sussex, to Barbara Broster, M.B., B.S., daughter of the late Thomas Mawdsley Broster, Esq., of Liverpool, and Mrs. Broster, of Abergavenny.

DEATHS.

COLLEY.—On Feb. 15th, at Folkestone, Constance Helena Colley, M.D.
DOWNIE.—On Feb. 17th, at Sunny Bank, Cannes, Colonel Kenneth M. Downie, I.M.S., retired, aged 66 years.
JEAFFRESON.—On Feb. 14th, at Red House, Wandsworth, Horace Jeaffreson, M.D., aged 75 years.
KIRBY.—On Feb. 18th, at South Lowestoft, Samuel John James Kirby, M.D., D.P.H., aged 58 years.
MAURICE.—On Feb. 14th, at Lloran House, Marlborough, James Blake Maurice, M.D., F.R.C.S.
OGILVY-RAMSAY.—On Thursday, Feb. 15th, at 5, Portland-square, Carlisle, Maxwell Ogilvy-Ramsay, M.A. St. Andrews, M.D., F.R.C.S. Edin., Hon. Surgeon to the Cumberland Infirmary.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

TWO CROWDED YEARS.

To the Editor of THE LANCET.

SIR,—I suggest that the enclosed is worth publishing in the columns of THE LANCET. I am, Sir, yours faithfully,
Welbeck-street, W., Feb. 16th, 1912. M.B.

ENCLOSURE.

DEAR MR. —— Tottenham, Feb. 7, 1912.

At last I am sending you, our long promised account of how many illnesses we managed to have during two years.

We were at the time 6 (children) in Family. It commenced with Nurse having a M—— Abscess at the back of her ear. Father took her to Golden Square Hospital where she remained for several weeks.

2. Willie, eldest boy, aged 6. Adanoids and Tonsles removed.
3. All, infectious sore throats.
4. Children all Mumps.
5. Mollie & Willie, Measles.
6. Nurse, Scarlet Fever.
7. Nellie, Dorothy and Edie, Measles *and* Scarlet Fever.
8. Arthur (baby then) measles.
9. Nellie, Edie and Arthur, whooping cough.
10. Ringworm and Impetago, all children.
11. Arthur Chickenpox and Impetago.
12. TWINS! born (8 of us now).
13. Mollie, Diptheria.
14. General Colds.

I am glad to say at the present time, we are all quite well,
And Remain, Yours Sincerely,
MOLLIE D——.

*** "M.B.'s" young correspondent has contributed a most interesting chapter to medicine. We have left her graphic notes exactly as they were sent to us.—ED. L.

HEALTH AND SANITATION IN NORTHERN NIGERIA.

THE Protectorate of Northern Nigeria, in West Africa, was established in the year 1900, and includes the northern portion of the territories formerly administered by the Royal Niger Company. It is bounded on the south by Southern Nigeria, to the west and north by the French possessions in the hinterland of Dahomey and the Soudan, and on the east by Lake Chad and the German territory of the Cameroons. The area is about 255,700 square miles. In his latest report to the Colonial Office on the affairs of the Protectorate, the Governor, Sir H. Hesketh Bell, K.C.M.G., remarks that in spite of a considerable influx of Europeans, mostly in connexion with the mines, and many of whom have had no previous experience of the tropics, the proportion of deaths and the invaliding rate show a most satisfactory improvement. Greater care in matters affecting health and better precautions as regards exposure and manner of life generally are having a marked effect on medical statistics, and the death-rate of 15·35 per 1000 among the resident European population is the lowest on record since the Government assumed the administration of the territory. The general health of the natives during 1910 appears to have been fairly good, and no epidemic of a serious nature occurred. Leprosy, however, has been found to be terribly rife among the natives of the Moslem states. It is estimated that in the Sokoto Emirate alone there are more than 6000 lepers, and that in the whole Protectorate there are probably some 80,000. The problem is one that requires vigorous action, due consideration being at the same time paid to native susceptibilities. Considerable attention has been paid to sanitation. A senior and junior sanitary officer have been appointed and have already done much excellent work in advising on the measures necessary—including the planning and laying out of new towns and villages—to improve the general health, not only of Europeans, but also of the native communities. Appended to the Governor's report is a summary of the Blue-book of the Protectorate for 1910-11, from which it appears that the average number of Europeans resident in the Protectorate during the year, including officials and non-officials, but excluding those engaged on the Lagos railway (northern extension), was 637, of whom 424 were officials and 213 non-officials. The large increase in the non-official population was due to the extension of the mining industry, and the decrease in the official population results from the reduction of the construction staff of the Baro-Kano railway. The native population is roughly estimated at 10,000,000, but until a careful assessment of land revenue and population has been completed throughout the Protectorate this figure can only be considered as approximate. It will probably prove to be under the actual number.

There were 13 deaths from all causes among Europeans during the year—12 due to disease and 1 to an accident. The total crude

European death-rate, calculated on the average resident population, and not corrected for age and sex, was 20·41 per 1000. The rates from all causes amongst officials and non-officials were 16·51 and 28·17 per 1000 respectively. The number of Europeans invalided during the year was 43. The invaliding rate per 1000 was 73·1 amongst officials and 79·8 amongst non-officials. The general character of the prevalent diseases has been maintained. Malaria still accounts for the greatest number of cases of illness in the Protectorate. The total number of admissions to hospitals of Europeans suffering from malaria during the year was 250, a decrease of 193 cases, notwithstanding that the European population increased from 544 to 637. The number of cases of mortality from blackwater fever was lower by 0·87 per cent. than in the previous year, and by 0·44 per cent. than the average of the last seven years. The actual number of admissions to hospitals on account of blackwater fever was 9 and there were 2 deaths. There was a further increase in the number of natives under treatment at the Government hospitals and dispensaries, the total being 23,770, exclusive of 4951 cases treated by the railway medical staff at Baro. The number of pauper patients treated during the year was 3899, an increase of 432 in the number for the preceding year.

During the year 8 cases of sleeping sickness, all amongst natives, were noted; 1 of these ended fatally. The individuals affected were sent for segregation to a camp in the neighbourhood of Zaria, a district free from tsetse flies. At Baro a marsh extends along the greater part of the river front, but schemes are now under consideration for filling in and draining the ground. According to all the canons of tropical hygiene Baro ought to be a notoriously unhealthy spot. Since its occupation by Europeans, however, its health record has not been at all a bad one, and most of the cases treated in the hospitals there are importations. During the year several cases of trypanosomiasis in natives have been discovered at Baro, and infected persons have been deported to the neighbourhood of Zaria to keep them away from tsetse flies. It is impossible to say if all or any of these cases were importations.

Small-pox is endemic, and takes an epidemic form in some parts of the Protectorate every year. Comparatively few of the cases come under medical observation, but this is not surprising, having regard to the fact that the number of medical officers actually in residence works out at one to an area of 9000 square miles. In some places, too, it is difficult to persuade the natives to agree to vaccination owing to religious or other prejudices. During the year 43 cases, all among natives, were treated, and 3 proved fatal. Successful vaccinations, to the number of 3942 cases, were performed during the year—the majority in the interior of the Protectorate, where formerly scarcely any success had been met with. This success is largely due to the use of powdered lymph. Small-pox is essentially a dry weather disease—every outbreak disappearing with the onset of the rains. Prophylactic inoculation has been practised amongst certain tribes in the Protectorate for many generations. The highest shade temperature recorded in the Protectorate during the year was 114°F. on March 23rd and 26th at two places in the Bornu Province. The lowest shade temperature was 39° at Sokoto on Jan. 4th. The highest mean shade temperature was 84·2° recorded at Baro, and the lowest 76·3° recorded at Ankpa. The greatest range of temperature was 73° recorded at Maiduguri—i.e., 41° to 114°. The greatest total rainfall was 56·44 inches recorded at Ankpa, in the Bassa Province, and the lowest, 16·87 inches, recorded at Geidam, in the Bornu Province. The greatest rainfall in one day was 5·55 inches, recorded at Zungeru on August 6th.

LANTERN SLIDES FOR AMBULANCE LECTURES.

To the Editor of THE LANCET.

SIR,—I should be glad if any of your readers would give me information as to the following: Is there any society or association who will lend lantern slides for illustrating courses of lectures on ambulance work?

I am, Sir, yours faithfully,

Feb. 13th, 1912. H.

MILNE'S SURGICAL DRESSINGS.

DURING Lister's period of work at Edinburgh Mr. John Milne was his special assistant in preparing antiseptic appliances according to the new ideas. When in 1877 Lister came to London he was, we are informed, accompanied by Milne, who established a factory at Ladywell on purpose to manufacture surgical dressings according to the special instructions of the great innovator. The factory has now developed into the Galen Manufacturing Co., Limited.

THE ETIOLOGY OF HERPES.

To the Editor of THE LANCET.

SIR,—The causation and etiology of herpes being somewhat obscure and theoretical, the following case may be of interest. I was asked to see a woman, aged 53, who was complaining of a rash on the arm. On examination she had a typical eruption of herpes on the left arm, extending from the wrist upwards along the inner side of the forearm, arm, and extending on to the chest and back. The eruption on the arm follows the line of the internal cutaneous nerve; on the left side of the chest it is scattered but profuse, and also on the scapular region. The patient is a very "nervous" subject, and the interesting point in the case is this. Three days before she felt the pain which preceded the appearance of the eruption a mouse ran up her left sleeve into her axilla, and was only liberated by her daughter unfastening her blouse at the back. The patient was always terrified of a mouse. I know her statement about the mouse is correct, for her daughter and her husband witnessed the occurrence. I may say I have seen six cases of herpes zoster this week, two of them occurring in two soldiers in the same barrack room.

I am, Sir, yours faithfully,

FREDERICK B. JEFFERISS, F.R.C.S. Edin.,
Chatham, Feb. 17th, 1912. M.R.C.S., L.R.C.P. Lond.

ACCIDENTAL POISONING.

To the Editor of THE LANCET.

SIR,—Might I suggest that all bottles containing poison sold to the public should not only be labelled "poison," but should also bear, in large type, the best means of antidoting such poison when accidentally swallowed? This would be of great use in cases of emergency before the arrival of a doctor.

I am, Sir, yours faithfully,

Fernshaw-road, S.W., Feb. 17th, 1912. (Mrs.) GRACE ROCHE.

"*Practicioner.*"—We think our correspondent, from his pseudonym, is not a practitioner of medicine. Anyhow, there is nothing to be done whatever in the condition.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

WE shall publish this diary from time to time that our readers may have under their hands the dates of the approaching scientific Congresses. It is unnecessary to issue the lists of all these functions week by week, and we propose to make only such gatherings as will occur in the immediate future the subject of regular announcement. The following Congresses, Conferences, and Exhibitions are announced for March and April:—

March 7th–11th (Berlin).—Thirty-third Balneological Congress.
March 23rd–April 4th (London, Royal Agricultural Hall).—International Smoke Abatement Exhibition.
April 1st and 2nd (Milan).—Italian National Convention upon the Sexual Question.
" (London).—First Congress of Pure Food and Health Society of Great Britain.
" 1st–7th (Tunis).—Twenty-second Congress of French-speaking Alienists and Neurologists.
" 8th–13th (Rome).—Seventh International Congress of Dermatology and Syphilology.
" 8th–15th (Johannesburg).—Thirteenth South African Medical Congress.
" 9th–11th (Paris).—Congress of Physiotherapy for French-speaking Physicians.
" 9th (Berlin).—Eleventh Congress of the German Society for Orthopedic Surgery.
" 9th–13th (Giessen).—Congress on Study of Families, Inheritance, and Race Hygiene.
" 10th–13th (Berlin).—Forty-first Congress of the German Surgical Society.
" 14th (Berlin).—Eighth Congress of the German Röntgen Society.
" 14th–20th (Rome).—Seventh International Congress on Tuberculosis.
" 15th–18th (Wiesbaden).—Twenty-ninth German Congress for Internal Medicine.
" 21st–24th (Munich).—Twenty-sixth Meeting of the Anatomical Society.
" (London, Olympia).—Ideal Homes Exhibition.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Feb. 21st, 1912.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb	Remarks.
Feb. 15	30·14	E.	...	60	48	41	40	42	Overcast
" 16	30·13	S.W.	0·02	60	54	42	48	48	Overcast
" 17	30·07	S.W.	...	78	58	47	45	47	Fine
" 18	29·89	N.E.	...	62	54	47	48	49	Cloudy
" 19	29·53	S.	...	64	53	47	48	50	Fine
" 20	29·42	S.W.	0·04	54	49	45	44	45	Raining
" 21	29·86	WSW	...	53	48	38	40	41	Overcast

The following journals, magazines, &c., have been received:—Journal of Laryngology, Rhinology, and Otology, Birmingham Medical Review, American Journal of Medical Sciences, Bulletin de la Société de l'Internat des Hôpitaux de Paris, Revue de Médecine,

Revue de Chirurgie, Journal of Mental Science, Revue de Psychiatrie et de Psychologie Expérimentale, South African Medical Record, American Journal of Obstetrics and Diseases of Women and Children, Interstate Medical Journal, American Journal of Surgery, Hospital Gazette, British Journal of Dental Science, Crónica Médica, Medical Review of Reviews, American Medicine, Albany Medical Annals, Journal of Tropical Medicine and Hygiene, British Journal of Dermatology, &c.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. (temporary address during building of new house).

MONDAY.

ODONTOLOGICAL SECTION (Hon. Secretaries—W. W. James, Stanley Mummery): at 8 P.M.

Paper:
Mr. W. W. James: The Dates of the Eruption of Teeth in about 2000 Children under 12.

Casual Communications:
Mr. J. G. Turner: Two Cases of Hypoplasia of Enamel.
Mr. E. Sturridge: An Experiment showing Formation and Migration of Ions.
Mr. J. F. Colyer: Some Radiographs of a Case of Advanced Periodontal Disease.

TUESDAY.

MEDICAL SECTION (Hon. Secretaries—Sir John F. H. Broadbent, Bart., Robert Hutchison): at 5.30 P.M.

Joint Meeting with
SURGICAL SECTION and
SECTION OF ANÆSTHETICS.

Debate:
On a Paper by Mr. T. P. Dunhill of Melbourne: Partial Thyroidectomy under Local Anæsthesia, with Special Reference to Exophthalmic Goitre.

The Debate will be opened by Dr. Hector Mackenzie. The following will take part in the Debate:—Dr. Albert Kocher (Berne), Mr. Wilfred Trotter, Mr. Charters Symonds, Dr. Dudley Buxton, Mr. Donald Armour, Mr. Walter Edmunds, Dr. J. Blumfeld, Dr. H. J. Scharlieb, C.M.G., Dr. G. A. H. Barton, Mr. Rupert Farrant, Mr. H. J. Paterson, Mr. James Berry.

FRIDAY.

LARYNGOLOGICAL SECTION (Hon. Secretaries—W. H. Kelson, Dan McKenzie), at 11, Chandos-street, W.: at 4.30 P.M.

Cases, &c.,
Will be shown by Dr. H. J. Davis, Dr. Watson Williams, Dr. W. H. Kelson, Mr. G. Wilkinson, Dr. Jobson Horne, and others.

SECTION OF ANÆSTHETICS (Hon. Secretaries—Mrs. Dickinson Berry, H. J. Scharlieb, C.M.G.): at 8.30 P.M.

Paper:
Mr. Felix Rood: Ether Infusion Anæsthesia.

Short Communication:
Mr. C. M. Page: Hedona Infusion Anæsthesia.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8.30 P.M., Pathological Evening. Specimens will be on view at 8 P.M.

HUNTERIAN SOCIETY, Guy's Hospital, St. Thomas's-street, S.E.

WEDNESDAY.—4 P.M., Clinical Meeting. Cases of interest will be shown by Dr. G. N. Pitt, Mr. W. A. Lane, and other Members of the Staff of the Hospital.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

WEDNESDAY.—8 P.M., Mr. H. A. Roberts: Education in Science as a Preparation for Industrial Work.

HARVEIAN SOCIETY OF LONDON, Stafford Rooms, Titchborne-street, Edgware-road, W.

THURSDAY.—8.30 P.M., Discussion on Acute Poliomyelitis and Allied Conditions (opened by Dr. F. Buzzard). The following have promised to take part:—Dr. F. E. Batten, Dr. W. d'Este Emery, Dr. T. B. Hyslop, and Dr. L. Guthrie.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY, WEDNESDAY, AND FRIDAY.—5 P.M., Prof. A. Keith: Important Phases in the Evolution of Man.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. J. M. H. MacLeod: Clinique (Skin). 5.15 P.M. Lecture:—Mr. J. Cantlie: The Diagnosis and Surgical Treatment of Hepatic Ailments.
TUESDAY.—4 P.M., Dr. P. Stewart: Clinique (Medical). 5.15 P.M., Lecture:—Sir George Beatson, K.C.B.: Treatment of Acute Appendicitis—When and How to Operate.
WEDNESDAY.—4 P.M., Mr. S. Handley: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. F. W. Price: Recent Advances in Heart Disease (illustrated by the polygraph).
THURSDAY.—4 P.M., Dr. E. P. Buzzard: Clinique (Medical). 5.15 P.M., Lecture:—Dr. F. W. Price: Recent Advances in Heart Disease (illustrated by the polygraph).
FRIDAY.—4 P.M., Mr. J. F. Cunningham: Clinique (Eye).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. R. Lloyd: Administration of Anæsthetics.
TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 11 A.M., Mr. Etherington-Smith: Demonstration of Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. H. Pritchard: Clinical Pathology.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Simson: Diseases of Women. 5 P.M., Lecture:—Mr. Etherington-Smith: Clinical. (Lecture II.)
THURSDAY.—10 A.M., Dr. Simson: Gynæcological Demonstration. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Baldwin: Practical Surgery. (Lecture V.)
FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 12.15 P.M., Lecture:—Dr. Pritchard: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Simson: Extra-uterine Gestation.
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. Bishop Harman: Diseases of the Eye. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patient (Mr. E. Gillespie). 2.30 P.M., Medical Out-patient (Dr. T. R. Whitham); Nose, Throat, and Ear (Mr. H. D. Gillies). 3 P.M., Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan).
TUESDAY.—Clinic: 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld).; Surgical (Mr. Howell Evans); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting). 4.30 P.M., Lecture:—Dr. R. M. Leslie: Arterio-sclerosis and its Treatment.
WEDNESDAY.—Clinics:—2 P.M., Throat Operations (Mr. Gillies). 2.30 P.M., Children's Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Mr. W. Steuart); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan). 5.30 P.M., Eye Operations (Mr. Brooks).
THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).
FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld): Surgical (Mr. E. Gillespie); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan). 4.30 P.M., Lecture:—Mr. R. P. Brooks: Derangements of the Ocular Muscles.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4.30 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.
TUESDAY.—2 P.M., Operations. 3.15 P.M., Dr. R. Wells: Medicine. 2.15 P.M., Mr. R. Carling: Surgery. 4.15 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 4.30 P.M., Special Lecture:—Dr. J. Taylor: Hemiplegia.
WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye. 3.30 P.M., Special Lecture:—Mr. Cargill: Retinitis. 5 P.M., Mr. McGavin: Surgical Demonstration or Lecture.
THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 4.30 P.M., Special Lecture:—Dr. Moon: Cardiac Disease in Children.
FRIDAY.—2 P.M., Operations. 2.15 P.M., Sir J. Rose Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.
SATURDAY.—10 A.M., Radiography. 11 A.M., Dr. A. Davies: Pathological Demonstration. 2 P.M., Operations. Out-patient Demonstration:—10 A.M., Surgical and Medical. 11 A.M., Eye.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY.—4 P.M., Lecture:—Mr. Waugh: Abdominal Pain.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY.—3.30 P.M., Clinical Lecture:—Mr. D. Armour: Joint Affection in Nervous Diseases.
FRIDAY.—3.30 P.M., Clinical Lecture:—Mr. P. Sargent: Decompressive Operations.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

TUESDAY.—6 P.M., Dr. W. Griffith: Bullous Eruptions.
THURSDAY.—6 P.M., Chesterfield Lecture:—Dr. M. Dockrell: Diseases of the Skin Due to Bacillary Infection.

UNIVERSITY OF LONDON (UNIVERSITY COLLEGE), The Francis Galton Laboratory for National Eugenics.

TUESDAY.—8.30 P.M., Dr. D. Heron: A Study of Extreme Alcoholism (Lecture V.)

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C. (in the Lecture Room of the Institute).

MONDAY.—6 P.M., Prof. S. Flexner: The Local Specific Treatment of Infections—The Biological Basis. (Harben Lecture I.)

WEDNESDAY.—6 P.M., Prof. S. Flexner: The Local Specific Treatment of Infections—Experimental Infections. (Harben Lecture II.)

FRIDAY.—6 P.M., Prof. S. Flexner: The Local Specific Treatment of Infections—Epidemic Cerebro-spinal Meningitis. (Harben Lecture III.)

ANCOATS HOSPITAL, Manchester.

THURSDAY.—4.15 P.M., Mr. W. R. Douglas: Renal Calculus. (Post-Graduate Clinic.)

MANCHESTER ROYAL INFIRMARY.

TUESDAY.—4.30 P.M., Dr. Donald: Uterine Fibroids.
FRIDAY.—4.30 P.M., Mr. Wrigley: Demonstration of Surgical Cases.

SALFORD ROYAL HOSPITAL.

THURSDAY.—4 30 P.M., Dr. C. C. Heywood: Serous Pleural Effusion. (Post-Graduate Course).

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (26th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (27th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London, (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.) Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.), Royal National Orthopædic (9.30 A.M. and 4 P.M.).

WEDNESDAY (28th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's 2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), St. Peter's 2 P.M.), Samaritan 9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY 29th.—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal National Orthopædic (9 A.M. and 3.30 P.M.), Royal Ear (2 P.M.), Children Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (1st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M., Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Royal National Orthopædic (3.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.)., Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (2nd).—Royal Free (9A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic (2 P.M.), Hospital operations are performed daily.

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THE INDEX TO THE LANCET.

The Index and Title-page to Vol. II. of 1911 were given in THE LANCET of Dec. 30th, 1911.

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